February 25, 2020

I-95 Northbound Rappahannock River Crossing

City of Fredericksburg and Stafford County, Virginia

A Design-Build Project

Volume I Technical Proposal

VDOT Virginia Department of Transportation

From: 1.26 Miles South of Route 3
To: 0.01 Miles South of Enon Road

State Project No.: 0095-111-270
Federal Project No.: NHP-095-2(545)
Contract ID Number: C00105510DB106

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ATTACHMENT 4.0.1.1

I-95 NORTHBOUND RAPPAHANNOCK RIVER CROSSING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Offerors shall furnish a copy of this Technical Proposal Checklist, with the page references added, with the Technical Proposal.

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Behind Cover
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Located in Appendix Tab
Letter of Submittal	NA	Sections 4.1		1
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	1
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Point of Contact information	NA	Section 4.1.4	yes	1
Principal Officer information	NA	Section 4.1.5	yes	1
Interim Milestone and Final Completion Date(s)	NA	Section 4.1.6	yes	1
Any Unique Milestone dates introduced by the Offeror	NA	Section 4.1.7	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	Located in Appendix Tab
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Located in Appendix Tab
Commitment to achieving a Twelve (12%) DBE	NA	Section 4.1.10	yes	1

ATTACHMENT 4.0.1.1

I-95 NORTHBOUND RAPPAHANNOCK RIVER CROSSING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
participation goal				
Offeror's Qualifications	NA	Section 4.2		2
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	2 Confirmation letter/email located in Appendix
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	2
Design Concept	NA	Section 4.3		3-24
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	5-16 Plans in Volume II
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	17-24 Plans in Volume II
Project Approach	NA	Section 4.4		25-41
Environmental Management	NA	Section 4.4.1	yes	26-31
Utilities	NA	Section 4.4.2	yes	32-38
Geotechnical	NA	Section 4.4.3	yes	38-41
Quality Assurance/ Quality Control (QA/QC) (as an appendix to Vol. I)	NA	Section 4.4.4	no	Located in Appendix Tab

ATTACHMENT 4.0.1.1

I-95 NORTHBOUND RAPPAHANNOCK RIVER CROSSING

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Construction of Project	NA	Section 4.5		42-56
Sequence of Construction	NA	Section 4.5.1	yes	43-51
Transportation Management Plan	NA	Section 4.5.2	yes	52-56
Proposal Schedule	NA	Section 4.~~7~~6		1-18
Proposal Schedule	NA	Section 4.~~7~~6	no	CD
Proposal Schedule Narrative	NA	Section 4.~~7~~6	no	1-18
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.~~7~~6	no	CD

Section 4.1 Letter of Submittal

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WAGMAN

General Construction | Heavy Civil | Geotechnical

Wagman Heavy Civil, Inc.
26000 Simpson Road
North Dinwiddie, VA 23803-8943

February 25, 2020

Mr. Suril R. Shah, P.E., DBIA
Alternative Project Delivery Division
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

RE: **Request for Proposals (RFP)**
I-95 Northbound Rappahannock River Crossing
From: 1.26 miles South of Route 3 (Plank Road)
To: 0.01 Miles South of Enon Road
RFP No: C00105510DB106

Dear Mr. Shah:

Wagman Heavy Civil, Inc. (Wagman) is pleased to submit our Proposal for I-95 Northbound Rappahannock River Crossing in Spotsylvania County, City of Fredericksburg, and Stafford County, Virginia. In accordance with the Letter of Submittal requirements for Section 4.1 we offer the following additional information for review:

4.1.1 Offeror's Official Information. The full legal name and address of Wagman is as follows:

Wagman Heavy Civil, Inc.
3290 N. Susquehanna Trail, York, PA 17406-9754
Phone: 717.767.8277
Fax: 717.767.5546

4.1.2 Declaration of Intent. If selected, Wagman intends to enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

4.1.3 120 Day Declaration. Pursuant to Part 1, Section 8.2, the offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after the date the Price Proposal is actually submitted to VDOT ("Price Proposal Submission Date").

4.1.4 Authorized Representative/Point of Contact
Glen Mays, DBIA, Design-Build Project Manager
26000 Simpson Road, North Dinwiddie, VA 23803-8943
P. 804.631.0000 | F. 804.733.6281
Email: gkmays@wagman.com

4.1.5 Principal Officer Information.
Greg Andricos, PE, President/COO
3290 N. Susquehanna Trail, York, PA 17406-9754
P. 717.767.8292 | F. 717.767.5546
Email. gmandricos@wagman.com

4.1.6 Interim Milestone and Final Completion Date(s). In accordance with RFP Part I, Section 2.3.1, the Team proposes an interim milestone date of October 29, 2021 and a final completion date of **May 17, 2024.**

4.1.7 Unique Milestone Dates: The Wagman Team proposes to remove all temporary river impacts (causeway and bridges) by February 14, 2023, providing benefit to all Federal, State, Local and Recreational stakeholders.

4.1.8 Proposal Payment Agreement or Waiver of Proposal Payment. An executed Proposal Payment Agreement (Attachment 9.3.1) can be found in the tab following this letter.

4.1.9 Certification Regarding Debarment Forms. Certificates Regarding Debarment for the Primary firms (Attachment 11.8.6 (a)) and the Lower Tier firms (Attachment 11.8.6 (b)) are included following this letter.

4.1.10 Disadvantaged Business Enterprises (DBE) Commitment (12%). The Wagman Team supports the DBE program and is committed to achieving or exceeding the twelve percent (12%) DBE participation goal for the entire value of the contract.

The Team has a long and successful history serving Virginians on numerous projects. We will build upon our existing transparent working relationship with VDOT and third-party stakeholders further promoting trust, confidence, and collaboration. As a single integrated Design-Build Team, we will design, permit, and construct the project in accordance with our best management practices regarding safety, quality, environmental stewardship, and outreach while reducing river and traffic impacts by expediting final completion. Thank you for the opportunity to submit our Proposal.

Respectfully,
Wagman Heavy Civil, Inc.

Glen K. Mays, DBIA
Design-Build Project Manager

Section 4.2 Offeror's Qualifications

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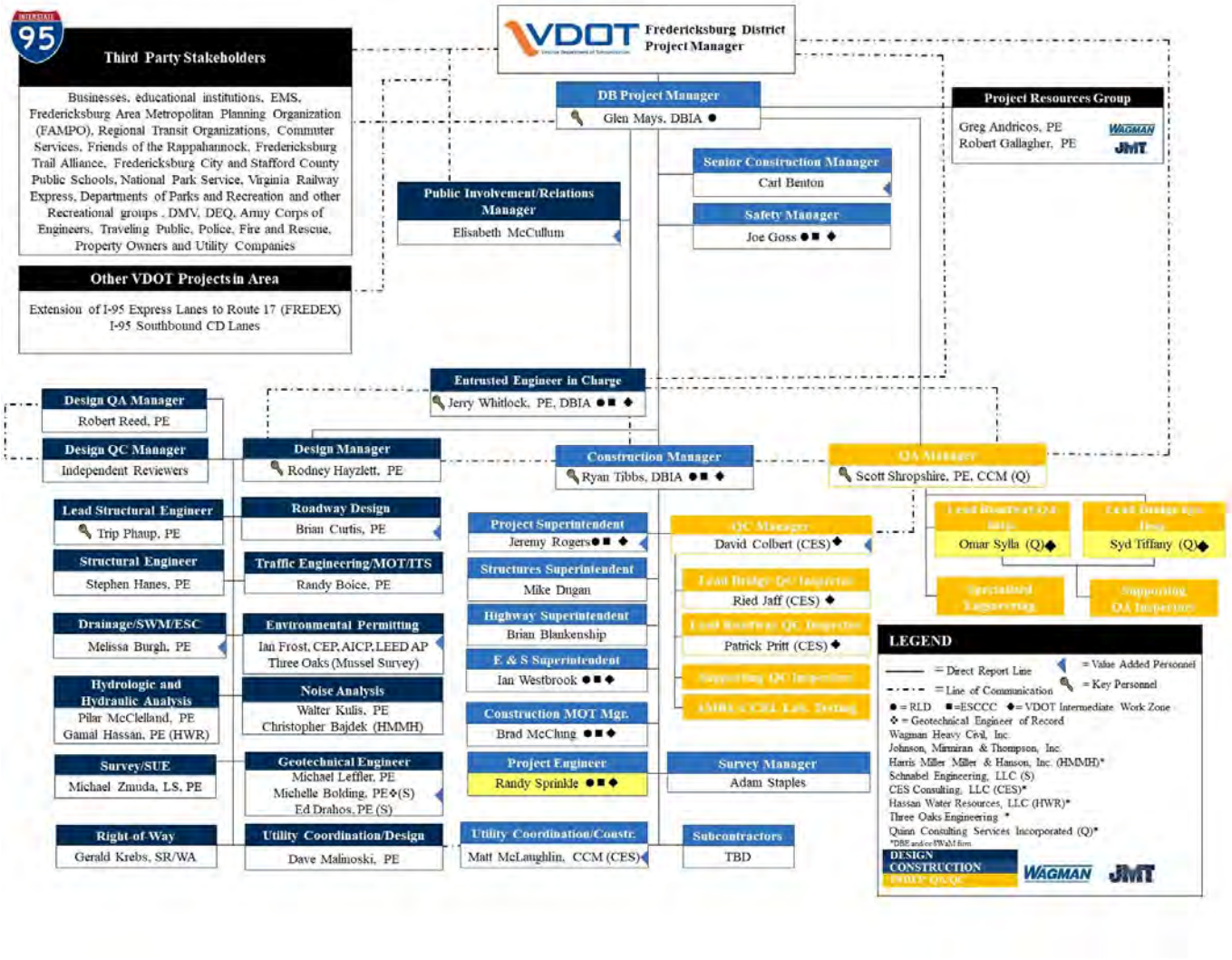
4.2.1 Confirmation of True and Accurate Information

We have modified the structure of our team per VDOT approval on January 15, 2020. The proposed organizational structure changes involve the substitution of the Project Engineer and Lead QA Inspectors. We have included the approval email/letter in the Appendix. No other changes have been made to the Wagman Team's organizational structure presented in the SOQ.

4.2.2 Organizational Chart and Revised Narrative

Our organizational chart below indicates the personnel changes (indicated in yellow box below) as approved by VDOT on January 15, 2020. The proposed organizational structure changes involve substitution of the Project Engineer and Lead QA Inspectors. Randy Sprinkle, with Wagman, will replace Berkley Hawkins as Project Engineer. Omar Sylla, with Quinn, will replace Noah Pate as Lead Roadway QA Inspector. Syd Tiffany, with Quinn, will replace Syd Gross as Lead Bridge QA Inspector. The functional relationships between positions and roles as described in our SOQ narrative remain unchanged, true, and accurate.



Section 4.3 Design Concept

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The Team will develop a design concept that meets or exceeds the design standards for **I-95 NORTHBOUND RAPPAHANNOCK RIVER CROSSING PROJECT (I-95 NB RRC)** including the Base Bid and Options 1, 2 and 3. Additionally, we will meet or exceed all requirements of the RFP and addenda, including (a) meet or exceed all requirements listed in the Design Criteria Table, (b) indicate that the limits of construction to include all stormwater management facilities are within the existing/ proposed right-of-way limits shown in the RFP Conceptual Plans with the exception of permanent and temporary easements, and (c) not include design elements that require Design Exceptions and/ or Design Waivers unless they are identified or included in the RFP or Addendum. The Team will advance and refine the conceptual design from its current design level into final design, providing VDOT full confidence in meeting all of the Project's priorities: Reducing cost, improving overall efficiency of the design, full constructability, design quality assurance as a component of our **integrated quality program**, and a project approach that limits risks to the public and all stakeholders.

The Team has evaluated the preliminary plans and information provided in the RFP documents and has developed a design concept that will promote benefits to end users in terms of **safety, operations, schedule, construction, public acceptance, and long-term sustainability.** We will successfully deliver this I-95 NB RRC under the advantages of the D-B process, within budget and schedule and will satisfy the projects interim milestone, deliver a unique milestone and achieve final completion on May 17, 2024.

The Team's award winning Odd Fellows Road Interchange Design Build Project

Our design team's joint experience from design development through construction on projects similar to I-95 NB RRC has strengthened the capabilities of our overall D-B team. **The I-95 NB RRC project will benefit from our collective experience and the existing relationship of our team members as is being successfully demonstrated on the I-95 SB CD Lanes – Rappahannock River Crossing project (I-95 SB RRC).** *The Team will require no learning curve throughout any phase of this project as we are an established, well-functioning team.* This team has also demonstrated our effectiveness on the Route 61 over the New River and Route 460 and Odd Fellows Road Interchange Design Build projects.

The Team has already established highly effective communication protocols that ensure the efficient development, approval, and ultimate implementation of a high-quality design. Led by Jerry Whitlock, P.E., the entrusted engineer, design and construction team members have been meeting weekly throughout the I-95 NB RRC procurement and will continue to do so through development of the RFC plans.

Due to the success realized on the SB project, our Entrusted Engineer in Charge, Jerry Whitlock and other key members of the Team will be co-located in JMT's office during design development to ensure constructability and design are fully integrated prior to transitioning to construction.

The Team's design for the I-95 NB RRC Project builds upon our overall D-B and corridor experience to deliver the best value to VDOT and other stakeholders as evidenced by some of the key elements of our design approach and concept. Key aspects and enhancements are highlighted below and are described later in our narrative and on our Conceptual Plans in Volume II.

Safety Improvement Elements	• Work Area Ingress & Egress to areas will be located to minimize traffic disruptions and designed to use the same enhanced construction ingress and egress access points with positive protection barrier offset to allow safe deceleration/acceleration as used on I-95 SB RRC. • Our TMP incorporates a temporary signal at Route 17 that eliminates weaving around the construction work zone by temporarily removing Loop Ramps C and D allowing B608 to be constructed in a single phase out of traffic. • All temporary lane shifts and merges will be designed for the full posted speed limit. All temporary geometry will meet the standards for the full posted speed limit.

Operations Improvement Elements	• Improved lane balancing by shifting the I-95 NB CD lanes gore 500 ft to the south enhancing traffic operations across the bridge by providing increased distance for weaving. • Microsimulations will be run on all MOT phases to ensure acceptable levels of service and queuing. • Option 2 raises overhead clearance on the I-95 NB CD bridge over Route 17 to current standards.
Schedule Improvement Elements	• Segmenting the design to include an Early Works Package enables construction activities in all non-jurisdictional areas of Segments 1 and 3 to begin early enabling final project completion by May 17, 2024. • Segmenting the design to include a separate package for B609 that will expedite RFC bridge plans enabling B609 to be completed and open to traffic in early 2023 well in advance of final project completion. • Innovative causeway/temporary bridge design and sequencing allows all temporary river impacts to be removed by February 14, 2023. • Provides integrated use of PlanGrid by design, construction, QA, QC, and VDOT, greatly enhancing project collaboration, communication, and efficiency, as successfully demonstrated on the I-95 SB RRC project. • Continue partnering with VDOT with over the shoulder design development by disciplines and use of Bluebeam for comment/resolution to streamline the design approval process.
Long-Term Asset Performance and Durability	• Reduced length of RFP conceptual MSE wall by 2,250 ft along the I-95 NB GP lanes. • Incorporated ATC #1 that significantly reduces concrete noise barrier C by replacement with earthen berm maximizing aesthetics while reducing long term future maintenance. • Economized design provides reduction of 11 BMPs from those identified in the RFP concept and reduced impacts to jurisdictional streams by 470 ft specific to elimination of BMP #3. • B608 is being constructed in one phase thereby eliminating the longitudinal construction joint.
Outreach and Public Involvement Best Practices	• Similar to our 95 SB RCC, our PRM, Elisabeth McCullum will supplement our accurate look ahead schedules with timely updates to VDOT's Fredericksburg Communications Staff. • Our causeway design incorporates the public signage for trail and river users as well as the upstream portage that are already in place and maintains the navigational channel in the current location that recreational river users have already become accustomed to. • Consistent with 95 SB RCC aesthetic treatment will be provided on the exposed concrete surfaces of the abutments, wing walls, and MSE walls for B609 that are in view of I-95. • Similar to our 95 SB RCC we will hold a separate Pardon Our Dust meeting for this project to discuss the planned TMP/MOT schemes and invite emergency service responders, school transportation, and regional transportation service providers.

The Team's design will meet or exceed the design standards for the I-95 NB RRC Project conforming to the RFP, Addenda, supporting documents, and responses to our Proprietary Meeting minutes, including the Design Criteria listed in *Part 2, Attachment 2.2*. Our design and construction limits will meet the Right-of-Way (ROW) requirements outlined in the RFP. The Team will advance and refine the conceptual design from the current completion level into final design, providing VDOT full confidence in the Project's long-term asset performance and durability while satisfying the needs of the traveling public.

DM, Rodney Hayzlett has over 13 years of experience working together on VDOT DB projects with our EIC, Jerry Whitlock and other key team members. VDOT benefited from the effectiveness of this relationship as the Team successfully integrated numerous post bid betterments into the I-95 SB RRC Project while still maintaining the original completion schedule.

We have provided detailed explanations for the enhancements made to the RFP plans (*Volume II Conceptual Plans*). **Our design concept including proposed stormwater management (SWM) facilities falls completely within the proposed ROW limits identified in the RFP conceptual plans** (with the exception of temporary and/or permanent easements as allowed by the RFP). Our design applies all standard and/or above standard elements (e.g., stopping-sight distance) **eliminating the need for time consuming approval of any additional design exceptions (DE) or design waivers (DW) beyond those identified in the RFP**.

Our proposed design elements are not in conflict with the proposed FredEx design as shown on design files included in the RFP and addenda. Our design also accommodates a future 4th lane on the I-95 NB mainline from Exit 126 to Fall Hill Avenue.

4.3.1 Conceptual Roadway Plans

Provided in *Volume II* of our Technical Proposal.

4.3.1 Conceptual Roadway Description

General Geometry (A)

The I-95 NB RRC Project includes adding three lanes in the median parallel to the I-95 SB General Purpose (GP) lanes between Fall Hill Avenue and Route 17 (Exit 133). The proposed lanes will be designated as GP lanes and serve the northbound through traffic while the existing GP lanes will be converted to collector-distributor (CD) lanes and serve Route 3 and Route 17 traffic. The project includes a new bridge over the Rappahannock River, a new bridge over Route 17, and associated roadway improvements on I-95 and Route 17. The project also separates Route 3 Ramp C from the I-95 NB mainline, extending the ramp as a two-lane ramp past Fall Hill Avenue where it will merge with the converted I-95 NB CD lanes. A slip ramp will provide a new exit for Route 17 (south of the river) onto the converted I-95 NB CD lanes. North of Route 17, the project will tie into the FredEx project currently under construction. The total length of the project is approximately 6.65 miles.

Our design includes the three Bid Options for the project:

- **Bid Option 1:** Extension of the auxiliary lane along I-95 NB GP lanes from approximately a half mile north of Truslow Road to Enon Road tying into the off-ramp to Centreport Parkway.
- **Bid Option 2:** Reconstruction and widening of I-95 NB CD Lanes Bridge B608 over Route 17 and approaches.
- **Bid Option 3:** Installing a sidewalk along the north side of NB Route 17.

The new I-95 NB GP lanes, I-95 NB Slip Ramp and new alignment of I-95 NB CD Lanes are functionally classified as Interstate. The VDOT geometric design standard that will be utilized for these project segments will be GS-INT in rolling terrain with a minimum design speed of 75 mph for the I-95 NB GP lanes, and 70 mph for the others. Existing I-95 NB lanes are functionally classified as a Rural Principal Arterial-Interstate. The VDOT geometric design standard that will be utilized for these segments will be GS-1 in rolling terrain with a minimum design speed of 75 mph.

Route 17 is functionally classified as an Urban Principal Arterial. The VDOT geometric design standard that will be utilized for these segments will be GS-5 in rolling terrain with a minimum design speed of 45 mph. All Ramps are functionally classified as Interchange Ramps with the geometric design standard of GS-R in rolling terrain with varying design speeds.

Refer to Design Criteria in our *Volume II Conceptual Plans* which summarizes key geometric features for the major roadway components. Furthermore, the additional criteria listed in the RFP Part 2 Attachment 2.2 shall also be implemented. All of these design elements will meet or exceed the specified RFP requirements.

The Team adjusted the horizontal and vertical profile of the I-95 NB GP lanes and the I-95 NB Slip Ramp to reduce project costs, optimize the construction schedule, reduce retaining wall lengths and heights, eliminate the undercutting of existing pavement and improve the overall balance of earthwork (minimizing borrow/waste) while adhering to VDOT and AASHTO criteria. The geometry adjustments are discussed in the next two sections. No changes to the horizontal or vertical geometry were made in the FredEx overlap area.

Horizontal Alignments (B)

The Team's horizontal geometric design meets or exceeds the requirements outlined in the RFP, Addenda, and Attachment 2.2 Design Criteria Table. To improve constructability of the I-95 NB GP Lanes bridge across the Rappahannock River, B609, the Team shifted the horizontal alignment of the I-95 NB GP lanes to provide a minimum one-foot separation between the I-95 NB GP lanes and I-95 SB GP lanes bridges (see **Figure 4.3.1.1**).

The shift allows for improved causeway design and more efficient bridge construction which is further discussed in section 4.3.2. The **horizontal shift provided the Team the flexibility to make vertical adjustments to the I-95 NB GP Lanes profile.** The horizontal shift also pushes the I-95 NB Slip Ramp to the I-95 NB CD Lanes south towards Fall Hill Avenue (see Figure 4.3.1.2 below). This **allows the acceleration lane from the slip ramp to be tapered into the I-95 NB CD lanes approximately 500' further from the NB bridge over the Rappahannock River than the RFP design, improving traffic operations across the bridge by providing more room for lane balancing.**

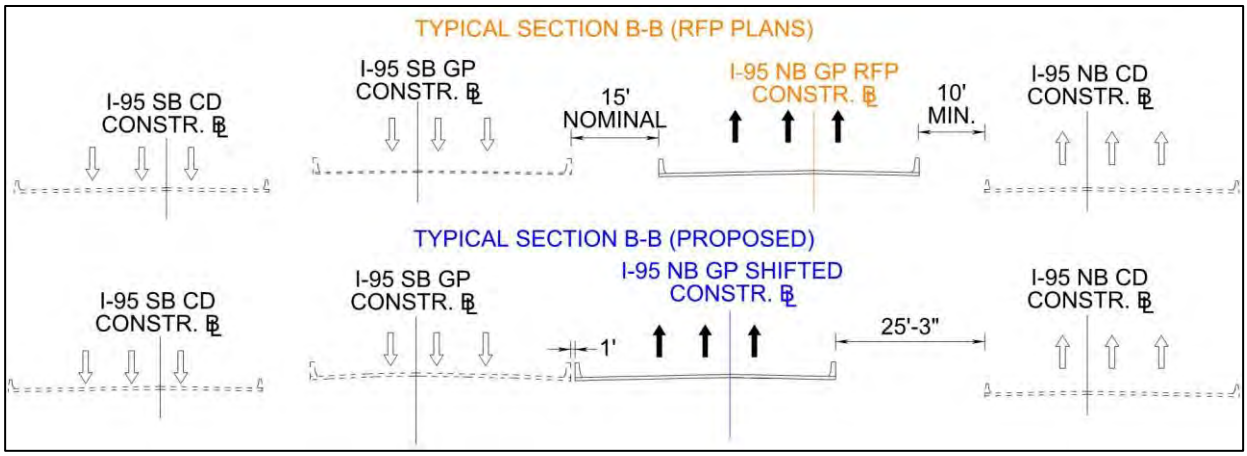


Figure 4.3.1.1: *Proposed horizontal shift of the I-95 NB GP lanes baseline at the Rappahannock River.*

The horizontal shift also increases the width of the gore areas between the slip ramp and the Route 3 Ramp C and between the slip ramp and the I-95 NB GP Lanes when compared to the RFP design. The increase in gore widths allows for an approximate 200'reduced opening in barrier between the gores and thus provides less opportunity for drivers to attempt to make an illegal movement from the Route 3 Ramp C lanes to the I-95 NB GP lanes. It also reduces the amount of pavement in the gores, improving drainage and reducing the likelihood of hydroplaning.

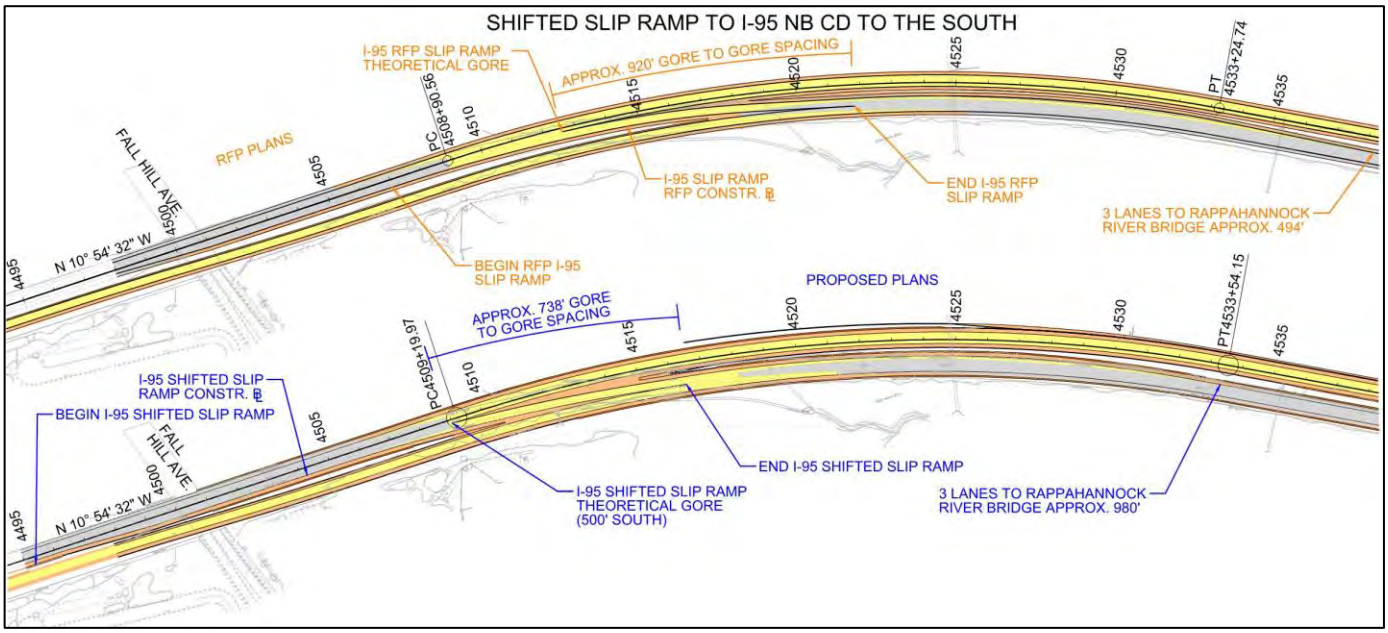


Figure 4.3.1.2: Proposed shift in horizontal alignment of the I-95 NB Slip Ramp to I-95 NB CD Lanes.

Maximum Grade for All Segments and Connectors (C)

The Team's vertical geometric design meets or exceeds the requirements outlined in the RFP, Addenda, and Attachment 2.2 Design Criteria Table. Our design concept does not exceed the maximum proposed vertical grades for each roadway alignment (*RFP Part 2 Attachment 2.2*); **actual maximum grades** are shown in a table of Sheet 1 in *Volume II Conceptual Plans*. The maximum grade for the I-95 NB GP lanes and CD

lanes is 3.5% under the allowable 4.0%. The maximum grades for ramps and Route 17 are all less than or equal to 3%, well under the allowable maximums. The conceptual design meets the RFP requirements for 0.5% minimum grades to assist with roadway drainage. The profile grades at the Route 17 interchange for I-95 NB CD Lanes Bridge, B608, have been engineered to **provide a minimum of 16'-6" vertical clearance over Route 17** allowing all height restrictions at the interchange to be removed. A minimum of 16'-6" vertical clearance is also maintained along Route 3 Ramp C under both the Cowan Boulevard and Fall Hill Avenue overpasses.

The Team's I-95 NB GP lanes mainline profile has been modified to allow for the proposed I-95 NB GP lanes bridge B609 over the Rappahannock River to match in elevation with the I-95 SB GP lanes bridge B604. This improves the aesthetics of the bridges. Matching the elevations of the bridges also improves the constructability of B609 which is discussed in Section 4.3.2. The vertical profile was also adjusted north and south of the River. Moving the horizontal alignment closer to the I-95 SB GP Lanes allows the I-95 NB GP Lanes vertical profile to be more tied to the I-95 SB GP lanes and less tied to the I-95 NB CD Lanes which are 4.5' higher at the River. South of the River, the profile was lowered to minimize the bifurcation between the I-95 SB GP Lanes and the I-95 NB GP Lanes (see Figure 4.3.1.3 below). This adjustment results in **improving the overall balance of earthwork (minimizing borrow/waste) and reducing the height of the required retaining wall from approximately 18' to a more efficient 3' and reducing the overall length by 2250'. North of the River, the profile was raised slightly to eliminate the undercutting of existing I-95 NB pavement** that was shown in the RFP design. This will create a more efficient project.

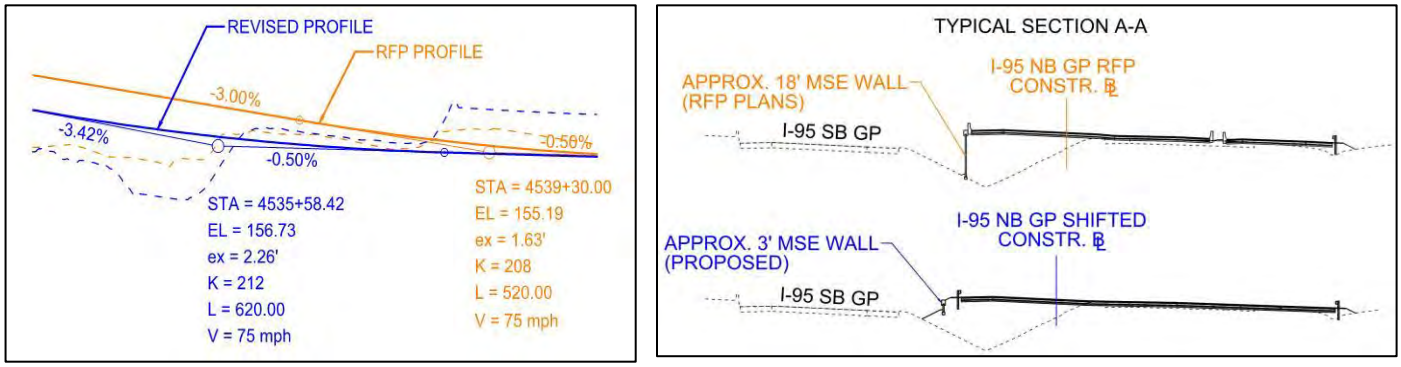


Figure 4.3.1.3: *Proposed improved vertical profile of I-95 NB GP Lanes south of the Rappahannock River allowing for reduced retaining wall height and length.*

The other vertical alignment adjusted on the project was Route 17 Ramp D to better tie into the existing cross-slope on Route 17 by adding a sag point. This adjustment also allowed the proposed road to better match existing pavement elevations, which is beneficial in maintaining traffic during construction.

The vertical and horizontal geometric refinements moved the required location and types of barrier around on the project but did not increase the overall length of traffic barrier on the project.

Typical Sections (D)

The geometry of each roadway element is described above and typical sections for each roadway element are included in *Volume II Conceptual Plans* identifying the number of lanes, lane widths, and shoulder widths and pavement sections as required by the RFP. The Team will be utilizing the Alternative 1: Standard Flexible Pavement Design as described in the RFP on this project. As discussed in Section 4.4.3, analysis of this design will be undertaken during scope validation to determine if any increase in thickness is required. Paved shoulders have been extended a minimum of 2 feet to the face of guardrail and barriers. For all locations on the project where new guardrail is being installed, Standard MC-4 will be followed to reduce roadside maintenance. Dimensions discussed below do not include the extra shoulder width to guardrail or barrier.

Starting south and heading north, the project includes four general typical sections:

1.) Between Route 3 and Fall Hill Avenue, the typical section includes converting the existing I-95 NB GP lanes back to three (3) 12-foot wide travel lanes with a minimum of 10-foot paved left and right shoulders (*see Typical Section D-D Volume II Sheet No. 6*). Parallel to the mainline and separated by a depressed median with guardrail on both sides is a two-lane ramp for Route 3 Ramp C which has two (2) 12-foot

wide travel lanes with a 4-foot wide paved shoulder left of traffic and 10-foot wide paved shoulder right of traffic. A retaining wall along the right shoulder is required from approximately Cowan Boulevard to Fall Hill Avenue to maintain the berm on which sits an existing soundwall. **The outside (right) shoulder was superelevated to match the cross slope of the travel lanes. This eliminated the need for drainage inlets and storm sewer pipe behind the proposed retaining wall.**

2.) Between Fall Hill Avenue and Route 17, the typical section includes three new I-95 GP lanes in the median of existing I-95 (*see Typical Section H-H Volume II Sheet No. 8*). The new I-95 NB GP lanes will be generally against the I-95 SB GP lanes separated by a median barrier. They will also be parallel to the existing I-95 NB lanes (converted to I-95 NB CD lanes) and separated by a depressed median. The new I-95 NB GP lanes and the I-95 NB CD lanes will have three (3) 12-foot wide travel lanes with 10-foot wide paved shoulders left and right of traffic.

Along I-95 NB CD lanes, north of the River, the proposed typical section was modified to include long post guardrail and a paved ditch, similarly to our mitigation strategy implemented on the I-95 SB RRC project to avoid the sliver cut (potential acid sulfate soils), right of way impacts, and associated impacts to utilities (*see Typical Section L-L Volume II Sheet No. 9*).

3.) North of Route 17, the typical section includes the existing I-95 NB GP lanes and widened I-95 NB CD lanes (*see Typical Section W-W Volume II Sheet No. 12*). The existing I-95 NB GP lanes has three (3) 12-foot wide travel lanes with 10-foot wide paved shoulders left and right of traffic. The I-95 NB CD lanes will have three (3) or four (4) 12-foot wide travel lanes with 10-foot wide paved shoulders left and right of traffic. The fourth lane provides a drop lane to FredEx Flyover Ramp HWN. The I-95 NB GP and CD Lanes are separated by a depressed median.

4.) The typical section for Bid Option 1 includes widening I-95 NB GP lanes to a four-lane cross-section (*see Typical Section AA-AA Volume II Sheet No. 14*). It includes (4) 12-foot wide travel lanes with 10-foot wide paved shoulders left and 12-foot right of traffic. The fourth outside lane is a drop lane to the Centreport Parkway Interchange.

5.) Bid Option 2 includes reconstructing, raising, and widening the I-95 NB CD Lanes bridge B608, and approaches (*see Typical Sections N-N and T-T Volume II Sheet No. 10A*). The typical section for Option 2 includes three (3) 12-foot wide travel lanes with 10-foot wide paved shoulders left and right of traffic.

6.) Bid Option 3 includes adding a minimum 5’ sidewalk along the north side of NB Route 17 (*see Typical Sections O-O, P-P, Q-Q Volume II Sheet No. 10A*). The sidewalk is separated from Route 17 by a buffer space or concrete barrier (under the I-95 overpasses).

Additional typical sections for ramps, at bridges, and at other retaining walls are shown in Sheets 3-14 in *Volume II Conceptual Plans.* Multi-lane ramps will include multiple 12-foot travel lanes with 4-foot wide paved shoulder left of traffic and 8-foot wide paved shoulder right of traffic. For single lane interchange ramps, 16-foot minimum travel lanes to be provided or will match the existing travel lane width providing a 4-foot wide paved shoulder left and 8-foot wide paved shoulder right of traffic. Curve widening will be provided when warranted. Typical sections along Route 17 vary as one travels north from Short Street where it is six lanes wide, under the I-95 overpasses where it is 8 lanes wide to approaching Sanford Drive where it is 11 lanes wide (counting turn lanes). Portions of Route 17 within the project limits have curb and gutter, others shoulders, and others concrete barriers.

Conceptual Hydraulic and Stormwater Management Design (E)

Our drainage and SWM design for this project meet or exceed criteria stipulated in the RFP. Our design applies Virginia Law, the *VDOT Drainage Manual*, applicable IIM’s, RFP SWM memos and the technical criteria outlined in Part IIC of the *Virginia Stormwater Management Program (VSMP)* Regulations.

Drainage Design. The intent of our drainage design is to **maintain the existing drainage patterns and natural divides while managing the additional runoff attributed to the increases in impervious area.** The Team has identified where new structures are needed see (*Volume II Conceptual Plans*). The proposed conveyance system will consist of ditches, inlets, storm sewer, pipe extensions, cross pipes and culverts. New and existing storm sewer systems will be used to effectively drain the proposed SWM facilities. Each drainage system has been designed and located to maintain the existing drainage patterns within the Hydraulic Unit Code (HUC) boundary, while conveying runoff to either a SWM facility or an adequate

outfall. The avoidance of the identified and potential locations of acid-sulfate soils and available geotechnical information were taken into consideration when identifying locations of pipes, ditches and stormwater management facilities. **Our design minimizes impacts to environmentally sensitive natural resources.**

The Team proposed an innovative SWM approach that allowed VDOT to take advantage of the revised RLD interpretation in IIM 195.12. This SWM approach resulted in conducting Value Engineering on the approved SWM Plan for I-95 SB RRC project which allowed for purchased nutrient credits and treatment by onsite BMPs to be utilized to help meet the I-95 NB RRC Project phosphorus removal requirement.

Stormwater Management - Water Quality. The I-95 NB RRC project has been grandfathered and has been designed in accordance with Part IIC of the *VSMP Regulations*. The Team referenced the RFP memo regarding IIM 195 interpretation to develop the Regulated Land Disturbance (RLD) that is subject to the VSMP regulations. Performance based criteria for evaluation of stormwater quality requirements have been used. The RLD areas for Base Scope, Option #2 and Option #3 is located within the Rappahannock River-Hazel Run (RA46) HUC boundary. The RLD area for Option #1 is primarily in the RA46 HUC boundary, with a small portion (about 1.0 acre) located within the Potomac Creek-Beaverdam Run (PL60) HUC Boundary. The small RLD area located in the PL60 HUC boundary fell under Situation 1, therefore did not warrant water quality treatment. The remainder of the project that is located within RA46 fell under Situation 2. **Table 4.3.1.4** summarizes the RLD area and required phosphorus removal for the base scope and the additional area and phosphorus removal required for each bid option. **Table 4.3.1.5** summarizes the required removal, the anticipated BMPs used to meet the requirements, as well as the anticipated removal rate.

Per the RFP, the Team will utilize the nutrient credits from the Route 3 Safety Improvements project and the I-95 SB RRC project in addition to purchasing nutrient credits to the maximum extent possible. The proposed SWM facilities have been evaluated to minimize the number of BMP's to be constructed reducing impacts to private properties which result in construction and maintenance savings for the Commonwealth. The selection of the combination of BMPs were based on analyzing the capital cost, annual maintenance cost and ease of maintenance of the BMPs as it relates to the pollutant removal efficiencies. Pollutant removal is enhanced using multi-BMP stormwater treatment trains. A stormwater treatment train incorporates at least two processes to maximize the removal of pollutants from the runoff. One of the proposed multi-BMP stormwater treatment trains is illustrated in **Figure 4.3.1.6**. It consists of multiple BMPs operating in series. Stormwater initially goes into the water quality swale for pollutant removal and then into the bioretention filter for additional pollutant removal. BMPs in series enhances pollutant removal, reducing the number of BMPs required. Proposed BMPs will not require additional right-of-way beyond what is shown in the RFP.

	RLD Area (acres)	Req. Phosphorus Removal (lbs./yr.)
Base Scope	128.8	21.2
Option #1	+9.5	+0.7
Option #2	+0.0	+0.0
Option #3	+0.4	+0.2
TOTAL	**138.7**	**22.1**

Table 4.3.1.4. *Regulated Land Disturbance Area and Required Phosphorus Removal for Base and Bid Options*

	P (lb/yr)
Required Removal	22.1
Total Off-Site Nutrient Credits	9.7
I-95 NB RRC Nutrient Credits (To Be Purchased)	3.4
Route 3 Nutrient Credits Purchased	1.2
I-95 SB RRC Nutrient Credits Purchased	5.0
Credit from I-95 SB RRC Site Treatment	6.5
Removal via Onsite Treatment	5.9
Total Treatment Provided	22.1

ID – Type	Efficiency	Upstream BMP	Pollutant Removed (lb/yr)
BMP #1 Bioretention Filter 2xWQV	65%		1.2
BMP #2 Water Quality Swale	35%		0.9
BMP #3 Bioretention Filter 2xWQV	65%	BMP #2	1.0
BMP #4 Bioretention Filter 2xWQV	65%		1.3
BMP #5 Bioretention Filter 2xWQV	65%		1.5

Table 4.3.1.5 *Water Quality Treatment Summary*

The elimination of eleven (11) BMP facilities from the RFP design provides capital cost and long-term maintenance cost savings to the Commonwealth. SWM facilities include a water quality swale with 35% removal efficiency and bioretention filters with 65% removal efficiency. Consideration of proper ingress and egress for maintenance vehicles/equipment was performed in the identification of the proposed BMP locations. The water quality swale is located in a treatment train with a bioretention filter (**Figure 4.3.1.6**). All BMPs are located within the Route 17 interchange. They will be equipped with a sediment forebay and salt tolerant plantings to help minimize future maintenance.

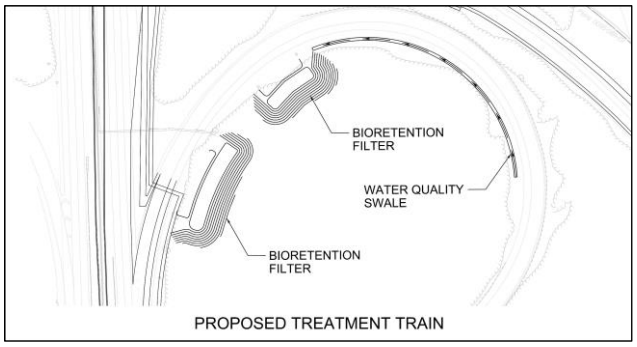


Figure 4.3.1.6 *Treatment Train for Enhanced Pollutant*

Stormwater Management – Water Quantity. All design work will be done in accordance with the latest version of IIM-LD-195, Chapter 11 SWM of the VDOT Drainage Manual, as well as the additional standards and reference documents listed in *Part 2, Section 2.1* including the Virginia SWM Program Law and Regulations.

In addition, channel and drainage system adequacy have been analyzed and met the Virginia E&S Control Regulations Minimum Standard 19 (MS-19) criteria and Part IIC of the VSMP Regulations. There are eighteen (18) identified outfalls for this project. Most outfalls discharge to natural channels, while several discharge to manmade channels. The **receiving channels have been evaluated using the 2 and 10-year storm** and appropriate measures will be applied to ensure adequate outfall. The limits of these analyses were either where the channel enters a mapped floodplain, or the drainage area is one hundred times greater than the contributing drainage area (1% of area or flow Rule). A summary of the Team's outfall analysis is summarized in **Table 4.3.1.7.**

Outfall No.	Stream	1% Rule	Adequacy Achieved Through
1	Trib to Hazel Run	N/A	MS-19 Analysis
2	Trib to Hazel Run	N/A	MS-19 Analysis
3	Trib to Hazel Run	N/A	Mod. Retention Basin
4	Trib to Hazel Run	N/A	MS-19 Analysis
5	Fall Quarry Run	N/A	MS-19 Analysis
6	Fall Quarry Run	N/A	MS-19 Analysis
7	Fall Quarry Run	N/A	MS-19 Analysis
8	Rappahanncock River	Yes	1% Rule Applies
9	Rappahanncock River	Yes	1% Rule Applies
10	England Run	N/A	MS-19 Analysis
11	Trib to England Run	N/A	MS-19 Analysis
12	Trib to Falls Run	N/A	MS-19 Analysis
13	Trib to Falls Run	N/A	MS-19 Analysis
14	Falls Run	N/A	1% Rule Applies
15	Trib to Claiborne Run	N/A	MS-19 Analysis
16	Trib to Claiborne Run	N/A	MS-19 Analysis
17	Trib to Claiborne Run	N/A	MS-19 Analysis
18	Trib to Claiborne Run	Yes	1% Rule Applies

Table 4.3.1.7. *Outfall Summary*

Hydrologic and Hydraulic Analysis (H&HA). The Team has performed a preliminary hydrologic and hydraulic modeling and analysis (H&HA) for the I-95 Bridge over Rappahannock River including the construction phase and the proposed causeway/temporary bridge. The preliminary H&HA shows that the proposed I-95 Bridge and the proposed in-river causeway will not have a negative impact on the existing flood elevations. The project is located in a flood Zone A (no flood elevations using detailed method) as shown on FEMA's Flood Insurance Rate Maps (FIRM), 510540184E and 5100650009C.

The Team utilized the Watershed Modeling System (WMS 10.1), FHWA, to delineate the watershed area (1673.66 sq. miles) and calculate the peak flood discharges and integrated the project survey data and available USGS 3m DEM maps to develop the ground and bathymetric Tin surface file. The Team used the Tin surface file to cut cross sections to develop the HEC-RAS hydraulic model for the preliminary existing and proposed conditions.

The Team utilized HEC-HMS to calculate the 2-, 5-, 10-, 25-, 50-, 100- and 500-year peak flood discharges and included these discharges in the HEC-RAS hydraulic models. Furthermore, several scenarios have been developed for the construction phase conditions using different causeway designs. Two preliminary HEC-RAS hydraulic models have been developed for the construction phase. The first hydraulic model utilized an in-river causeway constructed from one bank to halfway across the river, which is a typical construction method and the second hydraulic model utilized an **innovative in-river causeway** for the full width of the river and includes three 50' temporary bridges (Figure 4.4.1.2), which is the proposed causeway for the Team. Preliminary analysis shows that the proposed causeway will not cause a significant increase in the base flow flood levels or 100-year flood level, nor will it alter the flow distribution or concentrate flow on piers changing scour characteristics. **The Team's selected causeway configuration optimizes constructability, minimizes temporary impacts, and mitigates time of year and endangered species restrictions.**

Erosion and Sediment (E&S) Control. A good drainage design includes consideration of Erosion & Sediment Control. The contractor is integrated into the design process with over-the-shoulder workshops with the designer and the designer will perform periodic inspections to ensure the E&S controls are functioning as designed. The Team anticipates at least a two-phase E&S control plan to be required; other phases may be needed to accommodate segmented construction phasing. A Phase I and II E&S Control Plan will be developed and provided to VDOT for their review and approval that will contain all sediment on-site in accordance with our E&S plans. The E&S Control Plan will consist of the following: silt fencing and super silt fencing throughout the project as appropriate; sediment traps as required; rock check dams for steep graded slopes; check dams prior to entering existing channels; inlet protection; outlet protection; and turbidity curtain for the work in the River as appropriate. Where possible, clean water bypasses will also be utilized as part of the plan. The E&S Plan will include measures to stabilize, re-vegetate, and minimize the potential for acidic stormwater runoff from exposed areas with acid-sulfate soils. A more detailed discussion of E&S is contained in sections 4.4 and 4.5.

Melissa Burgh, PE, lead E&S designer will periodically perform joint site inspections (documenting in accordance with VDOT Form C-107) with the construction team throughout the duration of the project to ensure the E&S controls are functioning within the correct sequence and in accordance with the intent of the design. Melissa has been serving in the same role on I-95 SB RRC project including performing the site compliance inspections working alongside Wagman's ESCM, Ian Westbrook.

Proposed Right of Way Limits (F)

The Team's conceptual design for the project including Options 1, 2, and 3 and SWM facilities is contained within the ROW shown on the RFP Plans. The proposed right of way and limited access lines are shown on the Conceptual Roadway Plans in Volume II. The Team was able to reduce the right of way needs of the project at four locations along the corridor. A total of 39,174 sf less right of way is required to be acquired and three (3) fewer parcels are impacted. **This removes right of way from the critical path in these construction areas and reduces project costs for VDOT.** Areas with reduced right of way impact include:

1. Along I-95 NB CD lanes, north of the River, the proposed conceptual design eliminates slope excavation by modifying the typical section identified in Section 4.3.1(D) also results in eliminating right of way acquisition from the one parcel along the I-95 NB CD lanes south of Route 17. This removes right of way acquisition from the critical path for this area of construction.
2. Along Option 1, the proposed conceptual stormwater management concept eliminates the need for right of way acquisition in this area for Parcel 091.
3. Preliminary design of the earthen berm for noise abatement shows that approximately 5 to 14 feet of right of way width (7400 sf) along the length of the noise barrier wall could be reduced from that shown in the RFP Conceptual Plans where the earthen berm replaces the proposed noise barrier wall. This would **reduce** impacts to 2 additional parcels. During final design the Design Build Team will attempt to further reduce required right-of-way for the earthen berm. The Team will complete the

On the I-95 SB RRC project, The Team successfully implemented a Value Engineering proposal to reduce right of way acquisition **after RFC plan approval, saving VDOT up to $3 Million.**

noise report prior to acquisition of right of way from the Village of Idlewild Homeowners Association so the minimum amount of right of way required is acquired.

4. Elimination of potential SWM BMP south of the Route 3 interchange has eliminated right of way acquisition from Parcel 008.

Throughout the project, the Team will continue to look for opportunities to reduce the right of way acquisition required for the project.

The Team will prepare the submittal package for VDOT to obtain approval for the limited access change from the Commonwealth Transportation Board. Acquisition for temporary, permanent, and utility easements will be required and will be identified as the design progresses and will be included on the ROW plan submittal. Upon VDOT approval of the ROW plans, land acquisition will commence. Permanent easements for maintenance access for noise barriers will be provided where required.

To access the banks of the Rappahannock River to construct Bridge B609 (I-95 NB GP Lanes over the Rappahannock River), the Team will use the access road from Wicklow Drive down to the River that is currently being used to construct the I-95 SB GP lanes bridge. Wagman has met with and discussed the access with the City of Fredericksburg and will acquire a right of entry from the City. All negotiated requirements of the access agreement including those from the RFP and any stipulations concerning adjacent public trails will be followed by the Design Build Team.

The relevant experience and depth of JMT's ROW acquisition staff and subconsultants allows the Team to provide the ROW acquisition services, including appraisals and appraisal reviews, required for this contract. Meeting the proposed interim and final completion date proposed herein will be our priority. We have a veteran staff of former ROW agents and managers led by Alan Nash, LS who are ROW Utility Management System (RUMS) certified and intimately familiar with VDOT policy and procedures for the variety of ROW services required for this D-B Project.

Proposed Utility Impacts (G)

To better understand the potential utility conflicts associated with our design the Team held a project specific utility coordination meeting on November 6, 2019 similar to a UFI meeting with many of the utilities present in the project area. Additionally, the Team had numerous one on one conversations with the Utility owners.

There are a significant amount of utilities that we have identified on this project. The utilities are public and privately-owned facilities that include watermains, sanitary sewer mains, fiber optic duct banks, gas mains, transmission and distribution power as well as VDOT fiber and power supplies. We evaluated opportunities to design around the facilities and understand precautions that will be required to protect them in-place or identify the facilities that need to be relocated. Using SUDA, the Team has included as-built information of the utilities in our 3D OpenRoads model of the corridor. These utilities were then plotted on cross-sections.

Our Utility Coordinator, Matt McLaughlin, has been coordinating the utility relocations along I-95 SB RRC Project. His other relevant DB corridor experience includes the I-66 MMI, the I-66 Spot 1 & 2 Improvements Projects, and the I-66/Route 29 Gainesville Interchange project. Matt will be available to the project during both design and construction.

Table 4.3.1.8 shows those utilities that will require adjustments or relocations. Although VDOT and Summit IG have determined that the fiber optic trunk line can remain under shoulder pavement, based on the 3D modeled as-builts, significant portions of the fiber optic line between Route 3 and Fall Hill Avenue may need to be relocated or lowered in place. The Team will continue our coordination with Summit IG to ensure that this relocation can be sequenced with the FredEx activities and not impact the project schedule.

Utility	Conflict Location	Solution
Summit IG	Along east side of proposed construction for length of project	Relocate cables and manholes
VDOT ITS / Power	Along east side of proposed construction for length of project	Relocate cables and manholes
Dominion Energy (Distribution Lines)	I-95 NB GP Sta. 4589+85 Rte. 17 NB Sta. 8005+40	Raise poles or increase tension in cable Relocate pole
Cox Communications	I-95 NB GP Sta. 4589+85	Relocate cable underground
Verizon Virginia	Rte. 17 SB Sta. 9008+95, 9010+24 Rte. 17 NB Sta. 8028+93	Relocate pole and handhole
Columbia Gas	Rte. 17 SB Sta. 9008+75	Relocate service lines as necessary
City of Fredericksburg	None - Deep in ground	
Stafford County	Rte. 17 NB Sta. 8004+84, 8006+50, 8026+70	Install new sanitary sewer and manhole Relocate water main manhole

Table 4.3.1.8 *Utility Conflict Matrix*

Locations will be verified by test pitting before plans are developed to relocate these facilities. The systems that cross the interstate should be clear of conflict. Further investigations, including test holes will be done to reduce risk to construction operations by avoiding "utility surprises" which could have monetary and schedule impacts.

Design and construction decisions have been made to avoid impacts to utilities: 1) Along I-95 NB CD lanes, north of the River, the proposed conceptual design was modified to eliminate slope excavation which also resulted in eliminating impacts to an existing Dominion Power Pole Station 5578+50 right. While the I-95 NB RRC project does present a number of utility challenges, there is nothing anticipated on this project that the Team has not successfully resolved on other complex projects in the region. **Our approach is based on proactively identifying and mitigating utility conflicts from pre-investigation through design development and scheduling construction operations to not conflict with utility relocations.**

Soundwall Locations (H)

Noise barriers will be designed to meet the requirements of the RFP in compliance with the VDOT State Noise Abatement policy and VDOT Highway Traffic Noise Impact Analysis and Abatement Guidance Manual and will be finalized during the Final Noise Analysis process. Based on the preliminary noise Analysis Report, two noise barriers were found to be feasible and reasonable. Our design includes these noise barriers which are shown on Sheets 3 and 7 of the Conceptual Roadway Plans in *Volume II* and is located adjacent to the east side of the I-95 NB GP lanes south of Route 3 along the Idlewood Community (Barrier C) and along the I-95 NB CD lanes just north of Fall Hill Avenue (Barrier FH). The noise barriers will mitigate the increase in noise associated with this project. The Team will apply the appropriate finish for the noise barrier to aesthetically match the noise barriers recently constructed on adjacent projects. Our design will ensure there are no adverse drainage impacts due to the proposed noise barriers. Acquisition of right of way is shown in the RFP plans to accommodate the noise barriers. A minimum 10' buffer for maintenance will be provided for the noise barrier for future maintenance needs.

The Team design incorporates an approved ATC to use an earthen berm in place of a large continuous section of Noise Barrier C along the east side of NB I-95 south of Route 3. The berm would be located between NB I-95 and the Idlewild Development within the proposed right of way shown on the RFP Conceptual Plans. The Design Build Team estimates that approximately 19,865 square feet of the proposed 24,140 square feet of Noise Barrier C could be comprised of an earthen berm. The first 285 linear feet (4,275 square feet) of proposed Noise Barrier C would remain a concrete noise barrier wall due to topography and right of way constraints. No design waiver is required for the proposed earthen berm.

The Team plans to advance the construction of the required concrete noise barriers as soon as right of way is available and advance construction of the earthen berm as fill becomes available on the project.

The Team promised to construct the noise barrier on I-95 SB RRC early in the project. The noise barrier was constructed and functional for noise mitigation towards the end of 2019; less than two years from NTP and two and a half years before the project's completion date.

Lighting (I)

Roadway Lighting. The Team developed an AGI32 model to evaluate the existing intersection of Route 17 at Sanford Drive / South Gateway Drive as part of the I-95 SB RRC project. Using the AGI model, the Team selected a luminaire, prepared a point-to-point lighting analysis, optimized mounting height and luminaire orientation to meet IES RP-8 and VDOT's illumination criteria. The same model and process will be used to evaluate the luminaire on the existing signal pole to be relocated under this project. In addition, AGI32 models will be developed for the two new Route 17 intersections with the Northbound and Southbound I-95 Ramps. If Option 3 is exercised the AGI32 model will be expanded to include all uncontrolled ramp crossings.

Sign Lighting. The Team has reviewed the conceptual sign plan and have found that per VDOT's IIM-TE-380 none of the overhead sign structures require LED overhead sign lighting. This assessment is based upon a Visual Complexity Rating (VCR) of 3 with the use of Type XI sheeting. If during the design process prevailing conditions show sign lighting will be required, the Team will provide the sign lighting systems as appropriate.

Guardrail/Barrier (J)

The proposed locations of guardrail and barrier are shown on the Conceptual Roadway Plans in Volume II and summarized in a table on Sheet 1. New guardrail and traffic barriers used on this project will be MASH-compliant for **enhanced safety** to include the updated grading requirements (2' extended paved shoulder to face of rail and 4' graded area behind face of rail) for guardrail installations.

Full depth pavement will be extended to the face of new guardrail or new barrier installed as part of the project. MC-4 standard for paving under guardrail will also be utilized for all new guardrail.

The Wagman's Team revised vertical profile for the I-95 NB GP Lanes has not introduced any additional length of concrete barrier to the project over the RFP design. The revised design reduced the height of the required retaining wall from approximately 18' to a more efficient 3' and reduced the overall length by 2250'. During final design of the project, the Team will continue to look for opportunities to refine the geometry to minimize the use of traffic barriers and guardrail on the project to reduce long-term maintenance costs and improve traveler's safety.

Locations of Mill and Overlay/Buildup (K)

The proposed locations of mill and overlay and buildup are shown on the Conceptual Roadway Plans in *Volume II Conceptual Plans*. The patterns shown on the plan sheets differentiate which sections of the proposed design are full depth construction or reconstruction and sections of existing lanes that will be milled and overlaid. As shown on the typical sections, existing sections of I-95 NB and ramps requiring changes in pavement marking will be milled 2.0 inches and then overlaid with 2.0 inches of asphalt concrete Type SM-12.5E. Sections of Route 17 requiring changes in pavement marking will be milled 1.5 inches and then overlaid with 1.5 inches of asphalt concrete Type SM-12.5E. Generally, buildup is not expected in mill and overlay sections. Variable thickness of IM-19.0D will be utilized for buildup. Buildup is expected at the following locations:

- Transition area into the first curve of the I-95 NB GP Lanes from approximately Sta. 4505+00 to Sta.4509+00.
- Tie-in area for the new alignment of I-95 NB GP lanes into the existing I-95 NB lanes north of the River. Buildup is expected from approximately Sta. 4585+00 to Sta. 4590+00.
- The Team understands the Option 2 requirement for full depth reconstruction of I-95 NB CD Lanes at the Route 17 bridge, B608; however, buildup will be utilized outside the reconstruction limits.

Rumble strips will be installed or replaced as necessary on both sides of the I-95 NB GP lanes and I-95 NB CD lanes.

Project Signage (L)

The Team will perform an existing sign inventory upon notice to proceed. The sign inventory will be prepared in accordance with the VDOT Traffic Engineering Design Manual. New signing will be designed and installed for signs within the Project Limits continuing coordination with the adjacent FredEx project. During the design process sign messages and locations shall be evaluated in accordance with the Conceptual Sign Plan. Sign locations may need to be adjusted during both the construction and ultimate configuration of the roadways. Any adjustments to sign locations or identification of signs to be removed shall be documented during the sign design process.

Signing along adjacent roadways which may be beyond the Project Limits but related to the wayfinding or operation of I-95 NB, will also be included in both the inventory and signing design process.

In conjunction with the development of the Traffic Management Plan, the Team shall prepare a Sign Sequencing Plan and a Sign Unveiling Plan. The Sign Sequencing Plan will focus on the covering, removing, and displaying of signs during construction. The Sign Unveiling Plan will focus on the presentation of the signs during interim and final conditions.

The signing plans shall be developed at a scale of 1 inch = 50 feet when plotted full size (35" x 23"). The plans will show the proposed sign location, message, size, structure type, structure foundation, and MUTCD or Virginia Supplement to the MUTCD designation. The location and message of existing signs shall also be shown on the signing plans. The plans will also show the layout of any proposed non-standard signs. Text for non-standard signs shall follow IIM-TE-337 and use Clearview font when appropriate. Sign structures for VDOT signs along I-95 shall be either standard SSP-VA or SSP-VIA unless otherwise approved by VDOT. Sign structures for IDSP signs may be designed and installed using standards STP-1, STP-2, SSP-VA, or SSP-VIA. The Team understands that signing for the Integrated Directional Signing Program (IDSP) will need to be reviewed and approved by the IDSP Manager.

Sign placement shall be in accordance with the RFP, MUTCD, Virginia Supplement to the MUTCD, VDOT Road and Bridge Standards, and other applicable standards and requirements. Signs which have foundations within the median between the I-95 SB GP lanes and the I-95 NB lanes will be carefully evaluated to ensure there is no conflict with the FredEx fiber trunk line that will be within the median.

Provision for Future 4th Lane (M)

The Team's design does not preclude construction of a 4th lane between Exit 126 and Fall Hill Avenue. The proposed location of the 4th lane is shown in *Volume II Conceptual Plans* on Sheet 15. and on the typical sections throughout the plan sheets. South of Route 3, I-95 NB could be widened to the median to accommodate the 4th lane. This would be consistent with the plan for I-95 SB to be widened in the median south to Exit 126 and takes advantage of the extra space that exists toward the median under the Route 3 overpass. At the Route 3 interchange, the widening for the future 4th lane would transition to the outside and tie into the existing pavement associated with the existing Route 3 Ramp C merge onto I-95. This pavement can remain as an extra wide shoulder for the I-95 NB RRC project instead of being demolished. The extra pavement is available to be restriped into the fourth lane all the way to Cowan Boulevard. Between Cowan Boulevard and Fall Hill, I-95 NB would be widened on the outside and tie into the 4 lanes under the Fall Hill Avenue Overpass. The median space between I-95 NB and Route 3 Ramp C would be closed and MB 8A would be required between Cowan Boulevard and Fall Hill Avenue.

Other Key Project Features (N)

ITS Design. The existing traffic management systems in the project area include CCTV surveillance, an over height detection system, and continuous count stations (CCS). The field elements are connected to the traffic operations center via fiber optic cable and powered through individual service drops. The project will maintain the CCTV cameras and over height detection systems through the construction period until the new field elements are installed and operational or, in the case of the over height detector system, the system is no longer needed. VDOT will be responsible for the removal and relocation of the CCS. Removal and relocation and/or adjustments to the CCS necessary to correctly monitor lane configuration changes will be coordinated with the VDOT Project Manager.

The project will require relocation of several CCTV cameras. The Team will prepare a field of view sketch showing the coverage of the existing CCTV surveillance prior to taking any CCTV cameras offline. A field

of view sketch will also be prepared for the ultimate locations of the CCTV cameras to ensure complete and overlapping video surveillance coverage on the roadways within the project limits through the project area. If existing CCTV cameras must be removed before the relocated CCTV camera can be installed the existing coverage will be maintained using the remaining CCTV cameras or a temporary CCTV camera will be installed.

The over height detector system is made up of four discrete but identical systems. One system is on the mainline of SB I-95, one is along the existing I-95 NB CD Lanes, and two are along Route 17 east and west of I-95. Each of these systems consist of a cabinet and controller, over height detectors, a set of flashers, a static sign, a gong, and two DMS. The existing system will be maintained during the project, or if Option 2 is executed, until the I-95 NB CD lane bridge is replaced. If Option 2 is not executed, the over height detector system located along the I-95 northbound CD lanes will be relocated. If Option 2 is executed the four existing systems will be removed once the existing CD lane bridge has been removed.

The existing fiber network consists of a shared resource fiber along the east side of the I-95 through the length of the project. VDOT owns 48 fibers of this shared resource fiber. As needed to service devices, the 48 VDOT fibers are separated out and spliced to a 96-fiber cable (48 fibers to the device and 48 fibers back) to provide connections between the device, such as the CCTV cameras and traffic signal controllers, and the traffic operations centers. At locations where a CCTV camera and a traffic signal controller may be co-located, such as the Route 17 at Sanford Drive/South Gateway Drive intersection, separate fiber optic switches and routers shall be provided for the CCTV camera and the traffic signal controller.

Between Route 3 and the Rappahannock River, the existing shared resource fiber conduit is under the proposed roadway pavement along certain stretches. In addition, some of the current locations of the existing junction boxes associated with the shared resource fiber are within the proposed pavement as well. Relocation of the shared resource fiber and the junction boxes will be done by the operator of the shared resource fiber. Any fiber relocation for VDOT devices required as a result of this relocation will be done by the Team.

Extensive coordination will continue with the ongoing FredEx project as required for the area north of river. The FredEx fiber trunk line is to be located between the northbound and southbound general-purpose lanes. The location of the FredEx fiber trunk will be coordinated with the Team's roadway, drainage, and signing design. Where the FredEx fiber trunk connects the VDOT and shared resource fiber, as well as the interim devices and device locations, will require close coordination and communication with the Fred Ex team. The Team will design the ITS within the Overlap Area south of Truslow, as well as south of the Overlap Area. The Team will install the supporting infrastructure – poles, foundations, conduit, junction boxes, etc. - necessary for the ITS system within, and south of, the Overlap Area. This work will include the relocation of static signs, Dynamic Message Signs (DMS), and associated ITS equipment installed by FredEx.

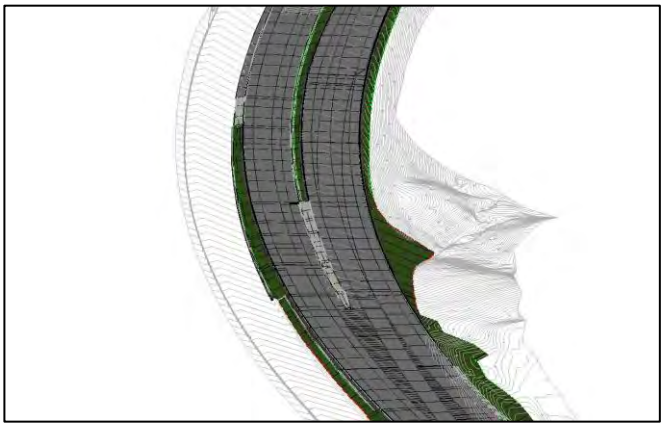
Coordination between the Team and FredEx is expected to be ongoing through the design and construction of the I-95 NB RRC project. The Team is well versed in the operations of the existing ITS elements and the significance in keeping them fully functional and operational throughout construction.

Open Roads Modeling. The Team has developed our proposed design concept using a detailed 3D model in OpenRoads (see **Figure 4.3.1.9**). The design team has also designed the I-95 SB RRC project in OpenRoads. Use of a 3D Model allowed JMT and Wagman to resolve complex grading issues, eliminate potential constructability concerns, develop an accurate method for quantity take off, and optimize the roadway profile through multiple iterations. The 3D model also improved quality assurance and quality control on the I-95 SB RRC.

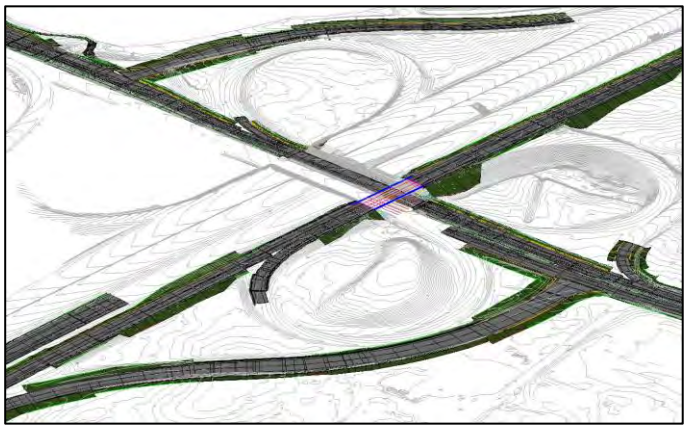
For the I-95 NB RRC project, the Team will again be utilizing 3D Model (OpenRoads, SUDA, and OpenBridge) to design the project. Use of the 3D Model will allow the design team to effectively review design alternatives, improve decision making, and improve coordination between disciplines. The Team will follow the special provisions for Model Based Design & Construction and prepare a Model Management Plan for the project. 3D Models will be delivered following the Right of Way and Release for Construction (RFC) plan submittal at the appropriate level of development/detail. The model will be updated for all plan revisions after the RFC plans and a final as-built model will be provided to VDOT.

The 3D model will also greatly enhance communications between the engineer and the contractor in the field. The Team has a workflow in place using the model to improve project construction, including improved construction surveying, quality control and for automated machine control. The Team has already successfully used 3D modelling to provide VDOT with enhanced graphics for the public outreach meetings on I-95 SB RRC project.

JMT has recently completed several project designs for VDOT using OpenRoads software including the I-95 SB RRC project. JMT has also extensively trained VDOT staff in the use of OpenRoads for Highway Design under a staff augmentation task assignment.



Route 17 Exit Slip Ramp to I-95 NB CD Lanes



Route 17 Interchange Improvements

Figure 4.3.1.9. *OpenRoads 3D Model*

Alternative Technical Concept

ATC 1: The Team is incorporating one alternative technical concept (ATC) approved by VDOT into our technical design. Attachment 3.6.7 is included in the appendix. The ATC includes design and construction of an earthen berm in combination with a concrete noise barrier wall for Noise Barrier C to mitigate any noise impacts identified in the Final Design Noise Analysis south of Route 3. Details of the design are discussed above in Section H. After award, the Design Build Team will perform the Final Design Noise Analysis and verify whether noise mitigation is required for the area covered by proposed Noise Barrier C. As part of the analysis, the Design Build Team will determine final barrier location and dimensions required to mitigate any identified noise impacts. The Design Build Team would then analyze and design an earthen berm to replace a large continuous section of Noise Barrier C. An earthen berm would only be used for portions of Noise Barrier Wall C where the berm will provide equal or better mitigation of identified noise impacts as Noise Barrier Wall C.

The Team assumes all risks with obtaining approval to use an earthen berm in lieu of concrete wall and will adhere to all conditions listed by VDOT on the ATC Response Form (Attachment 3.6.6) provided in the appendix. This includes, but is not limited to Noise Analysis Design Report, public involvement process, ROW acquisition, any stabilization requirements associated with the berm, maintaining drainage, meeting clear zone requirements, utility relocations, etc. The Design Build Team will meet the slope criteria listed in RFP Part 2 section 2.6.3 and shall design the berm considering future maintenance activities. The Design Build Team will evaluate and install Limited Access Fence in this location as required. No design waiver is required for the proposed berm.

4.3.2 Conceptual Structural Plans and Narrative

4.3.2 Conceptual Structural Plans

Please see the Conceptual Structural Plans provided in *Volume II.*

4.3.2 Conceptual Structural Narrative

Rappahannock River Bridge

The Team's plan includes shifting the alignment of the proposed I-95 NB GP Lanes Bridge (B609) towards the I-95 SB GP Lanes Bridge (B604) to the RFP defined 1' minimum horizontal clearance and aligning the piers between the two bridges. Below are project enhancements associated with this plan.

Rendering of Proposed I-95 NB GP Lanes Bridge over the Rappahannock River

The proposed shift complies with all VDOT Design Criteria

- Gap between bridges will be 1' at the parapet and deck level.
- Gap between piers is sufficient to facilitate forming of the pier caps.
- Aligning the piers of the SB and NB GP Lanes Bridges will improve the hydraulic flow of the river through the site and will potentially reduce scour concerns.
- Aligning the piers of the SB and NB GP Lanes Bridges will improve the flow for river users (rafters, kayakers, boaters, etc.).

Improved constructability

- Allows use of cranes with standard boom lengths and does not require use of a luffing jib or extended crane boom – results in much safer construction.
- Allows girders to be set in the normal manner in sections without the use of temporary erection towers.
- Allows most of the girders to be delivered from the Quarry Access Road which reduces shoulder or partial lane closures on the existing parallel bridges.
- Aligning NB GP Lanes Bridge piers with SB GP Lanes Bridge piers allows for simpler, safer and faster pier cap construction since caps will be in line with previously constructed caps.

Reduced environmental footprint

- Existing causeway can be shifted to the east for construction – required volume and plan area of shifted causeway is smaller than the current causeway in place for the SB GP Lanes Bridge construction.
- Results in shifting Pier 1 away from a potential impact to the historic lock and canal system.
- Avoids constructing a causeway at a higher elevation that is required if the shift is not implemented. A higher causeway would be required so that cranes with luffing jibs can reach up and over the piers as the girders are placed.
- Constructing a causeway at a higher elevation also results in larger volume (27,090 CY vs. 16,260 CY of stone) resulting in increased environmental impacts.

Allows for safer, quicker, and more economical bridge safety inspections from the right land of I-95

- JMT spoke with Todd Hicks with McClain and Company (540.729.5790) regarding single side inspection accessibility with widths around 65'-0" out-to-out. Mr. Hicks stated that McClain and Company currently has 2 (two) Aspen Aerial A-75 II Bridge Inspection Units stationed at their Culpeper location which is approximately 30 miles from the Rappahannock bridge location. Mr. Hicks stated that the A-75's can easily provide full width access to the bridge from a single side with over 75' of horizontal reach. He also stated that horizontal clearances as low as 10'-0" adjacent to the

bridge are not a problem since the platform is approximately 5'-0" in width and the boom has multiple articulating segments to access various challenging locations.
- Results in safer, quicker, and more economical bridge inspection activities since equipment can be oriented in the direction of travel and requires only a shoulder closure on one side with one MOT setup.

Provided below is a description and structural concept for the bridge structure, retaining walls, horizontal and vertical clearances, and the number and widths of lanes and shoulders for the bridge on I-95 NB GP Lanes over the Rappahannock River. The descriptions are organized by key structural features with bullets highlighting aspects of each feature.

Span Configuration

- The bridge consists of a 5-span continuous structure with spans of 169.67' – 270' – 270' – 270' -207.17' from centerline of bearing to centerline of bearing and a total length of 1,200.83' from back of backwall to back of backwall.
- The piers are located to match the pier locations for the I-95 SB GP Lane bridge currently under construction and the existing pier 1, 3, 5, and 7 locations for the existing SB Bridge (SB CD Lane Bridge in ultimate configuration) to minimize changes in the hydraulic behavior of the waterway and to minimize changes in the scour characteristics of the site. Another benefit of the alignment is to maintain a consistent channel opening between both the I-95 SB RRC and this project for recreational users of the river. Furthermore, the upstream portage location will not need to be relocated to construct this project.
- The two southernmost spans avoid impacting the existing trail and cultural and historic features associated with the Rappahannock Navigation Canal and Rappahannock Canal Lock #1 / Minor's Lock, which will facilitate approval of the bridge design by the Department of Historic Resources.
- The two northernmost spans provide the required clearance for the north channel of the Rappahannock River, defined as the clear distance between existing pier 5 and 6 of the existing SB lane bridge, and allow for construction of a future trail.

Transverse Section

- The bridge transverse section provides a 12' outside shoulder, 3 – 12' lanes, and a 12' inside shoulder – all in accordance with the RFP requirements.

Geometry

- The horizontal geometry of the I-95 NB GP Lanes Construction Baseline provides a minimum of 1'-0" horizontal clearance between the edge of the new structure and the I-95 SB GP Lanes bridge currently under construction and provides over 25'-0" horizontal clearance between the edge of the new structure and the existing NB bridge which exceeds the value depicted in the RFP conceptual plans.
- The location of the proposed substructure units provides the required horizontal clearances for the trails, cultural and historic features, and north channel as described above.
- The vertical profile set for the I-95 NB GP Lanes Construction Baseline provides final top of deck elevations for the new structure that are within 1'-0" of the corresponding top of deck elevations for the I-95 SB GP Lanes bridge currently under construction and are not greater than 10'-0" of the corresponding top of deck elevations for the existing NB bridge.
- The vertical profile provides a 0.50% grade on the bridge to facilitate adequate drainage and cleaning of the superstructure and locates the low point of the vertical curve off the bridge.
- The vertical profile also provides more than adequate clearance from bottom of superstructure low chord to maximum expected high-water elevation.

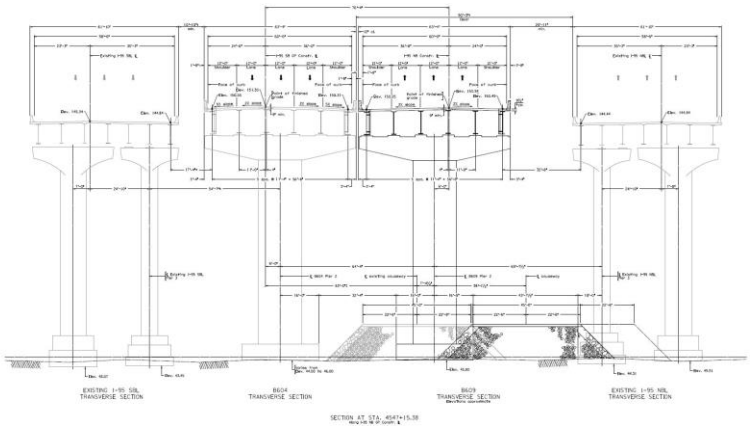
Superstructure

- Low permeability, low shrinkage concrete will be used in the deck slab, parapets, terminal walls, and integral abutment backwall.
- Corrosion resistant reinforcing steel, class III (stainless steel) will be used in the deck slab, parapets, terminal walls, and integral abutment backwalls.
- Structural steel plate girders will be Grade 50 (fy = 50 ksi), weathering steel with no components of the girders painted since the bridge is jointless.

- Bearings will be designed to accommodate vertical and lateral loads and thermal movements.
- The bridge substructure and superstructure will be designed to permit future jacking and replacement of bearings and will include installing jacking bearing stiffeners as permanent features of the structural steel plate girders.
- The bridge will have a jointless superstructure using VDOT's Virginia Abutment details.
- A deck slab drainage system will be optimized and designed to meet allowable spread requirements with downspouts located in the first girder bay and hidden from view from the NB CD Lanes bridge.
- A 42" high concrete parapet (F-shape) will be provided on both sides of the bridge.

Substructure

- Virginia Abutment details will be provided at both ends of the bridge to provide a jointless structure.
  - The south abutment will be a concrete cantilever type abutment founded on rock.
  - Based on our thorough understanding of the geotechnical conditions at the site, the north abutment will also be a concrete cantilever type abutment founded on rock.
  - Wingwalls parallel to I-95 will be MSE walls with concrete parapets mounted on moment slabs.
  - Aesthetic treatment, using drystack stone with a 2" relief, will be provided on exposed vertical concrete surfaces of the abutments, wingwalls, and MSE walls and on all retaining walls that are in view of I-95.
  - Corrosion resistant reinforcing steel, class I (low carbon, chromium steel) will be used in the abutment neat.
  - Galvanized tooth joints will be used at each abutment in accordance with Virginia Abutment details.
  - Buried approach slabs will be used at each abutment to improve rideability at the bridge approaches.
- Hammerhead piers will be used with "race track" columns, rectangular columns with rounded ends, and spread footings founded on rock.
  - The new pier locations will match the existing pier locations of the SB GP Lanes bridge currently under construction and the existing SB bridge to provide visually clean lines, an efficient hydraulic opening, and to preserve the recreational channel.
  - As shown in the figure, the bottom of the pier footings will be founded on solid rock at elevations similar to the existing bottom of pier footing elevations of the existing SB and NB bridge and the SB GP Lanes Bridge currently under construction.



Wagman and JMT's Successful Construction Activities for the SB GP Lanes Bridge and the Plan for Successful Construction of the NB GP Lanes Bridge Showing All Four Piers and Existing and Proposed Temporary Causeways

As described above and as shown on the Conceptual Structural Plans, the Team's Design Concept meets or exceeds the Project's intended scope of work and will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. Key features include -

- Public Acceptance - Aesthetic treatment, using drystack stone with a 2" relief, will be provided on exposed vertical concrete surfaces of the abutments, wingwalls, and MSE walls and on all retaining walls that are in view of I-95.

- Public Acceptance – Reducing the number of substructure units than on the existing SB and NB bridges minimizes the impact to the stream and embankments.
- Operations, Schedule, and Construction – Wagman can self-perform the construction of unique foundation elements such as drilled shafts or drilled-in mini-piles if foundation conditions vary from conditions depicted in the existing plans and the Geotechnical Data Report prepared by the Department, and the conditions encountered during construction of the SB GP Lanes bridge. The ability to self-perform this work allows Wagman to control the risk associated with encountering unexpected conditions.
- Operations, Schedule, and Construction – The Team's Design Concept bridge reduces the number of piers which reduces construction time and reduces future maintenance costs for VDOT.
- Operations, Schedule, and Construction – The innovative causeway access reduces temporary environmental impacts, allows the bridge to be completed over a year ahead of the final completion date, and has all temporary river impacts removed by February 14, 2023.
- Operations, Schedule, and Construction – Construction access from the south side reduces environmental impacts on the north side of the Rappahannock River.
- Safety – Wagman will access the Rappahannock River bridge for construction away from the mainline of I-95 reducing impacts to the travelling public and improving safety during construction.

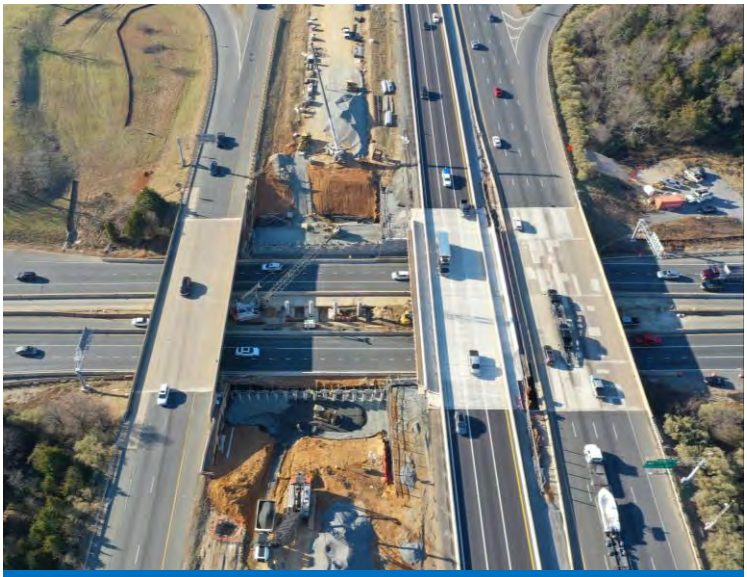
Wagman and JMT incorporated many of the same design details and features on the award-winning Route 61 (McArthur Avenue) over the New River, Route 460 and Old Virginia Avenue in the Town of Narrows, VA

The Team has considered the types of materials, methods, and functionality of a number of details and has incorporated them into the Design Concept to reduce the need for future inspection and maintenance and to provide VDOT full confidence in the Project's long-term asset performance and durability. Highlights of these details and features include -

- Using a continuous bridge superstructure to provide redundancy, to improve structural performance, and to eliminate joints.
- Using low permeability, low shrinkage concrete in all superstructure elements.
- Providing corrosion resistant reinforcing steel (Class III – stainless steel) in the deck slab, parapets, terminal walls, and integral abutment backwalls.
- Providing corrosion resistant reinforcing steel (Class I – low carbon, chromium) in the neat portions of the Virginia Abutments.
- Designing a jointless bridge using VDOT's Virginia Abutment details.
- Using weathering structural steel plate girders and cross frames without the need to paint.
- Using galvanized steel for miscellaneous steel elements without the need to paint.
- Using buried approach slabs at each abutment to reduce the "bump" at the end of the bridge.
- Providing foundations on spread footings on rock.
- Using a deck slab drainage system to control the amount of water that collects on the bridge.
- Providing permanent jacking bearing stiffeners on the structural steel plate girders and designing the bridge substructure and superstructure for future jacking and bearing replacement requirements.

Route 17 Bridge (Option #2)

Provided below is a description and structural concept for the bridge structure, retaining walls, horizontal and vertical clearances, and the number and widths of lanes and shoulders for the demolition and replacement of the bridge on I-95 NB CD Lanes over Route 17. The description is organized by key structural features with bullets highlighting aspects of each feature.



Wagman and JMT's Current Successful Construction Activities for the Bridges on I-95 over Route 17

Span Configuration

- The bridge consists of 2-span continuous for live load structures with spans of 70.5' – 74.5' for a total length of 145' from end of slab to end of slab.
- The abutments are located behind the Route 17 shoulders and the center pier is located to match the pier locations for the 3 bridges currently under construction and the existing pier location for the existing NB CD Lanes bridge.
- The span lengths provide an opening to accommodate an 8' outside shoulder, 4-12' lanes, and a 2' inside shoulder in the Route 17 SB direction and 2' inside shoulder, 4-12' lanes, 4' outside shoulder, 2' barrier, and 8' sidewalk (Option #3) in the Route 17 NB direction.
- The pier will be protected by the VDOT Standard Bridge Pier Protection System.

Transverse Sections

- The bridge transverse section provides a 12' inside shoulder, 3 – 12' lanes, and a 12' outside shoulder – all in accordance with the RFP requirements.

Geometry

- The horizontal geometry of the NB CD Lanes bridge will parallel the NB GP Lanes bridge currently under construction.
- The location of the proposed pier provides horizontal clearances that require the use of VDOT's Standard Bridge Pier Protection System.
- The vertical profiles set for the NB CD Lanes Construction Baselines provides 16'-6" minimum vertical clearance over Route 17.

Superstructure

- Low permeability, low shrinkage concrete will be used in the deck slab, parapets, terminal walls, and fully integral abutment backwalls.
- Corrosion resistant reinforcing steel, class III (stainless steel) will be used in the deck slab, parapets, terminal walls, and fully integral abutment backwalls.
- Prestressed concrete bulb-T beams with galvanized steel diaphragms will be used. Paint will not be required for any structure elements.
- Bearings at piers will be laminated elastomeric pads and are not required at fully integral abutments.
- The bridge will have a jointless superstructure using VDOT's fully integral abutment details with approach slabs and sleeper pads at each abutment.
- A 42" high concrete parapet (F-shape) will be provided on both sides of the bridge.
- A standpipe fire hydrant and water supply fire protection system complying with NFPA 502, Section 6.6 will be installed at each end of the bridge.

Substructure

- Fully integral abutment details will be provided at the bridge to provide a jointless structure.
  - The fully integral abutment with approach slab and sleeper pad will accommodate all thermal movements and provide a jointless structure.

  - The abutments will be concrete stub abutments founded on steel H-piles driven to refusal wrapped behind MSE retaining walls.
  - The abutment piles will be located to avoid conflicts with the existing abutment piles.
  - Aesthetic treatment, using drystack stone with a 2" relief, will be provided on exposed vertical concrete surfaces of the abutments, wingwalls, and MSE walls and on all retaining walls that are in view of I-95.
  - The abutments and MSE retaining walls will be located in line with the three (3) bridges under construction for the I-95 SB Lanes project to provide the required roadway widths and clearances along Route 17.
  - Corrosion resistant reinforcing steel, class I (low carbon, chromium steel) will be used in the fully integral abutment caps
  - Approach slabs supported on sleeper pads will be used at each abutment to improve rideability at the bridge approaches.
- Pier details will be provided at the bridge to provide a jointless structure.
  - The superstructure will be designed as continuous for live loads by using a concrete closure pour diaphragm at the ends of the beams above the pier and will eliminate the need for a joint.
  - The pier will be a concrete cap and multi-column pier on footings founded on steel H-piles driven to refusal.
  - The pier piles will be located to avoid conflicts with the existing pier piles.
  - The pier location matches the existing pier location of the existing NB CD Lanes bridge to provide the required roadway widths and clearances along Route 17.
  - Corrosion resistant reinforcing steel, class I (low carbon, chromium steel) will be used in the pier neat.
  - VDOT Standard Bridge Pier Protection Systems will be installed on both sides of the pier and will tie into the system currently under construction.

As described above and as shown on the Conceptual Structural Plans, the Team's Design Concept meets or exceeds the Project's intended scope of work and will benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. Key features include -

- Safety - Increases vertical clearance to 16'-6" for the new bridge.
- Safety - Provides a wider roadway opening for Route 17 traffic below the bridges.
- Safety - Provides Bridge Pier Protection System in front of the pier.
- Safety and Public Acceptance – Span length and substructure configuration accommodates a barrier protected, sidewalk under the north span as desired for Option #3.
- Public Acceptance - Aesthetic treatment, using drystack stone with a 2" relief, will be provided on all exposed vertical concrete surfaces of the abutments, wingwalls, and MSE walls and on all retaining walls that are in view of I-95.
- Operations, Schedule, and Construction – Using MSE walls, stub abutments, and prestressed concrete bulb-T beams makes construction easy and reduces the construction schedule.
- Safety, Operations, Schedule, and Construction – MOT scheme will allow the new bridge to be constructed during one phase of construction that improves safety, constructability, and quality in the finished product.
- Safety, Operations, Schedule, and Construction – Raising the vertical profile of the I-95 bridge versus lowering the vertical profile of Route 17 avoids major traffic impacts, minimizes utility conflicts and relocations, and allows Wagman to maintain control of construction critical path.
- Operations, Schedule, and Construction – Wagman can self-perform the construction of unique foundation elements such as drilled-in mini-piles if the existing foundations and pile locations vary from conditions depicted in the existing NB CD Lanes bridge plans. The ability to self-perform this work allows Wagman to control the risk associated with encountering unexpected conditions.

The Team has considered the types of materials, methods, and functionality of a number of details and has incorporated them into the Design Concept to reduce the need for future inspection and maintenance and to provide VDOT full confidence in the Project's long-term asset performance and durability. Highlights of these details and features include -

- Using a continuous for live load bridge superstructure to provide redundancy, to improve structural performance, and to eliminate joints.
- Using low permeability, low shrinkage concrete in all superstructure elements.
- Providing corrosion resistant reinforcing steel (Class III – stainless steel) in the deck slab, parapets, terminal walls, and fully integral abutment backwalls.
- Using corrosion resistant reinforcing steel (Class I – low carbon, chromium) in the neat portions of the pier, fully integral abutment caps, and Bridge Pier Protection Systems.
- Designing a jointless bridge using VDOT's fully integral abutment details.
- Using prestressed concrete bulb-T beams without the need to paint.
- Using galvanized steel for miscellaneous steel elements - diaphragms, sole plates – without the need to paint.
- Providing long lasting, laminated elastomeric bearing pads.
- Using approach slabs with sleeper pads at each abutment to reduce the "bump" at the end of the bridge.
- Providing deep foundations of steel H-piles driven to refusal and installed to the required capacities.

Retaining Walls

Three, distinct types of retaining walls are anticipated to be incorporated into the project based on geotechnical requirements, geometric constraints, and constructability considerations.

Ramp C of the Route 3 Interchange, along the east side, a retaining wall will be constructed to minimize the amount of excavation into the existing slope and to avoid impacts to the recently constructed soundwall along this portion of the project.

At the tie-in of Route 3, Ramp C to the I-95 GP and CD Lanes, a short Mechanically Stabilized Earth (MSE) retaining wall will be used on the median side next to the SB GP Lanes. The wall length and height support an economical use of an MSE retaining wall in this location.

North of the Rappahannock River and south of Route 17, a short modified RW-3 retaining wall will be used between the bifurcated SB GP and NB GP Lanes. The wall length and height support an economical use of a gravity retaining wall in this location.

Near the beginning of the FREDEX Ramp HWN, a short MSE retaining wall will be used to minimize the amount of fill associated with this work. Using a retaining wall in this area will also limit the impacts to an existing culvert and stream by eliminating the need to extend the existing culvert.

All retaining walls on the project in view of I-95 will have architectural treatment consisting of drystack stone with a 2" relief. In addition, all retaining walls will have Corrosion Resistant Reinforcement when required by VDOT Structure and Bridge Division IIM-S&B-81.8.

Benefit to VDOT for Maintenance Activities Allowed by the Proposed Sequence of Construction

The Team's current construction schedule shows that the new NB GP Lanes bridge (B609) will be open to traffic in April 2023. At this time, traffic will be shifted from the existing NB bridge over the Rappahannock River to the new NB GP Lanes bridge to facilitate road work from the Rappahannock River heading north to Route 17. While the existing bridge and road are closed from April 2023 until August 2023, VDOT has an excellent opportunity to perform maintenance on the existing NB bridge over the Rappahannock bridge without the need for staged work areas and without the need for nighttime work including:

- Performing a **detailed deck inspection and testing** such as visually identifying cracks and delaminations, performing chloride ion profile testing, performing GPR depth of cover measurements, performing half-cell potential testing, and obtaining concrete cores for petrographic analysis or compressive strength testing.
- Performing **deck repairs** including patching spalls, repairing cracks, or placing an overlay.
- Reconstructing or repairing the **expansion joints**.
- Cleaning, repairing, or replacing the **deck drainage system**.
- Performing **parapet repairs** including patching spalls, repairing cracks, and sealing or coating the concrete surface.
- Jacking and blocking the girders to **replace bearings or perform girder end repairs**.

Section 4.4 Project Approach

WAGMAN | JMT

A DESIGN-BUILD TEAM

Our integrated approach to managing the I-95 NB RRC project throughout its lifecycle from design through permitting and construction and ultimately final acceptance is summarized below. Our approach focuses on innovative, compliant design and efficient, quality construction. Our approach benefits from best practices in environmental management, outreach, utility coordination and relocation, geotechnical design and construction, and quality assurance/quality control developed and refined during the delivery of our I-95 SB RRC, Odd Fellows Road Interchange D/B, and Route 7 Interchange over the DTR D/B projects.

Additionally, the Team employs a comprehensive DBE program (outreach, engagement, and support) that has resulted in Wagman exceeding the original DBE goal on all of our previous VDOT D/B projects. This highly successful program will be employed on this project to maximize DBE participation in both professional and construction services which will ultimately result in the Team exceeding the 12% DBE goal.

Environmental Best Practices	• A written Environmental Management Plan (EMP) will be developed which will identify all permits and commitments and incorporate best practices such as the use of exclusion fencing to protect non-impacted wetlands and historical site during construction. • Project specific environmental training will be included in the orientation training/video that is mandatory for all team members and subcontractors to complete prior to working on site. • All team members are formally empowered to use of STOP WORK AUTHORITY if an activity presents a danger to the environment. • Our design reduces 470 lf of jurisdictional stream impacts shown in the RFP concept by elimination of BMP #3 and removes all stream impacts (40 lf) at the Falls Run culvert. • We have reduced 11 BMPs that were identified in the RFP concept and are incorporating grass swales for water quality. • Our modified causeway design reduces approximately 750 square feet of temporary impacts from that presently in place on I-95 SB RRC and all temporary river impacts will be removed by February 14, 2023. • Noise barrier installation will occur in the early phases of project to reduce noise impacts to affected landowners and ATC #1 provides an earthen berm for the majority of noise barrier C. • Wagman will employ a full time E&S manager with RLD & ESCCC certification and station a hydro seeder and mulcher on the project to facilitate immediate stabilization.
Best Practices for Utility Coordination	• As a part our Team's integrated approach to design and construction, JMT will generate 3-D models from their Open Roads design files for use by our Utility Coordinator when coordinating utility company P&Es to ensure that the physical location and means and methods of utility relocations are compatible with the RFC plans and construction sequence. • We will inspect all utility relocations as they are being performed on the project to ensure they are installed correctly in accordance with the approved P&Es using electronic survey equipment, as-built these systems and record them in our comprehensive utility matrix • Our project schedule contained in section 4.6 has been established such that no utility relocations are on the critical path
Geotechnical Benefits	• Our integration of JMT, Schnabel, and Wagman's professional engineers during design ensures efficient and constructible solutions are engineered. VDOT and the traveling public benefited from this approach on I-95 SB RRC when B651 was opened one month ahead of schedule after successfully mitigating significant settlement and concerns related to existing utilities. • The Team is excluding borings at B609 Piers 2 and 3 from scope validation consideration. • Multiple solutions (removal, replacement, mixing and/or chemical treatment) will be engineered to provide flexibility when unsuitable soils are encountered during construction. • The Team will avoid known locations of acid sulfate soils or mitigate by approved methods such as covering with sufficient thickness of non-aggressive fill or neutralization.

4.4.1 Environmental Management

Wagman and JMT have teamed together on multiple design-build projects across Virginia and have a thorough understanding of the importance of a fully integrated environmental process to manage the Project throughout its lifespan. The Team has developed a thorough and integrated approach to environmental management and permitting focusing on identifying and understanding the environmental challenges and constraints of the Project. Our Team will develop solutions to mitigate and avoid these constraints preventing Project delays. This approach was successfully utilized on the I-95 SB RRC Project currently under construction enabling the Team to secure the environmental permits in under six months. Our Team's successful collaboration on the I-95 SB RRC Project and in depth understanding of the Project's environmental risks will ensure a seamless transition into the I-95 NB RRC Project. Our schedule integrates all environmental activities and key milestones including strategies to ensure the environmental permitting are secured ahead of schedule and environmental constraints do not delay the Project. Our approach is founded on the strategies described below that minimize environmental risks and takes full advantage of our Team's in-depth knowledge from the I-95 SB RRC Project. These strategies are identified below:

- Preparation of an Environmental Management Plan (EMP) which will be developed based on the existing I-95 SB RRC EMP.
- The environmental permitting is on the critical path for this project. Therefore, the Team will employ strategies with the regulatory agencies to accelerate the process. We will hold a pre-application meeting with the agencies and propose a State Programmatic General Permit (SPGP) from the U.S. Army Corps of Engineers and a General Permit (GP) from the Department of Environmental Quality instead of Individual Permits. This would compress the schedule for securing environmental permits from about six months to about two to three months. To be conservative, our proposed schedule accounts for a six-month process, but we have broached the subject with the regulatory agencies and they are amenable to considering this approach.
- Mandatory Environmental training and monitoring program based on the successful I-95 SB RRC Training sessions that were provided to all contractors, VDOT personnel, and sub-consultants working of the project.
- Early agency involvement and buy-in of the Project design and methodologies. Our Team is currently working with the agencies on the I-95 SB RRC project and our Team will leverage these existing working relationships to expedite the permitting process.
- Utilizing our Team's in-depth Project knowledge and relationships with the same stakeholders developed from the I-95 SB RRC to deliver this project by May 17, 2024.
- Our design modifies the existing causeway, which reduces its overall footprint and allows its removal along with all temporary river impacts by February 14, 2023 per the unique milestone proposed by the Team.

Approach to Environmental Management During Design and Construction

The Team has developed an integrated and thorough environmental management approach to implement during the design and construction phases of the Project. The Team will employ the successful environmental management strategies that we employed for the I-95 SB RRC Project. **This approach minimizes and avoids impacts to sensitive environmental resources, meets NEPA commitments, and will secure all required environmental permits expeditiously minimizing potential project delays. This will enable the Team to deliver the Project on a compressed schedule.** The specific environmental management efforts that the Team will use are summarized below:

Our Team has established a working rapport with the regulatory agencies and project stakeholders during the I-95 SB RRC project enabling a seamless and streamlined transition into the I-95 NB RRC project.

Streamline NEPA re-evaluation by minimizing disturbance outside existing ROW and avoiding disturbance outside Study Area. Our design avoids disturbance outside of the NEPA Study Area and

reduces the work proposed outside of the existing ROW identified in the RFP. By relocating multiple BMPs within the existing Project corridor, we are able to reduce/eliminate ROW acquisitions that are in the RFP. As our design progresses, we will ensure that the limits of disturbance and ROW do not expand beyond those evaluated in the Environmental Assessment; thereby avoiding the need for additional NEPA studies and avoiding potential project delays.

Prepare an Environmental Management Plan (EMP) During Design developed from our Team's existing I-95 SB RRC EMP. The Team prepared an EMP for the I-95 SB RRC Project, which identified all required environmental permits and environmental commitments made in the RFP, amendments, and the 2017 Environmental Assessment/FONSI and which tracked the coordination and status of all environmental permits and approvals. The updated EMP will be incorporated into the Team's comprehensive Site-Specific Environmental Health and Safety Plan (EHSP) and include updated commitments and conditions in tabular form to: track environmental permit acquisitions, minimize potential project delays, ensure that each environmental permit/approval is accounted for in the Project schedule, and to facilitate environmental compliance throughout the life of the project.

Environmental Training During Design and Construction. Before construction begins, our environmental team will develop a project specific environmental training session program concerning sensitive environmental resources and permit compliance requirements**. This training will be developed using the existing I-95 SB RRC Project training program which was implemented with success early in the project**. The training will identify the resources that must be avoided and highlight all of the permit compliance requirements. The training session will be video recorded and all new project personnel including subcontractors will be required to receive a formal orientation prior to working on the site including a review of the EHSP and the environmental training video. This will ensure all Team members are aware of all environmental conditions, environmental resources, and commitments avoiding permit non-compliance. **Our Team is well aware of the Project constraints and issues from working on I-95 SB RRC Project and the additional training will reinforce our Team's awareness and the importance of permit compliance.**

Approach to Environmental Permitting During Design and Construction

The Team will use the following approach to environmental permitting during design and construction to avoid, minimize, and mitigate for impacts to environmental resources and avoid potential project delays during the permitting process.

Include Environmental Resource Surveys/Analysis Early in the Design and in the schedule. To minimize chances of project delays, upon NTP, we will immediately coordinate with the regulatory/consulting agencies to refine the parameters for the mussel species surveys). We will prepare and submit the 4(d) self-certification for the northern long-eared bat, as we did for the I-95 SB RRC project, thereby eliminating Time of Year (TOY) restrictions on tree clearing. Our project schedule included in Section 4.6 includes activities for natural resource inventories to ensure all survey windows are accounted for to avoid project delays. We do not expect that we will need to complete any additional environmental studies (i.e. wetlands, WOUS, and special status species) for borrow sites, staging and laydown areas, because we expect to use the same approved sites from the I-95 SB RRC project. Surveys for the mussel species will be scheduled immediately prior to instream work to avoid delays associated with the time of year restrictions (as shown in Figure 4.4.1-1) associated with the mussels. **Our Team successfully completed these surveys within a tight survey window on the I-95 SB RRC Project by working closely with DGIF, DCR, and the USFWS to accomplish this task.**

Develop Avoidance and Minimization Measures including Pre-application Meeting and Agency Workshop Early in the Design. Our Team will continue to collaborate with the design and construction teams to avoid and minimize impacts to important environmental resources. Our design already reduces the impacts to jurisdictional streams by about 500 linear feet. **We will invite the regulatory agencies to participate in a pre-application meeting and a workshop to get agency "buy-in" on the avoidance and minimization measures early in the design process and to propose permitting through the SPGP and GP, to accelerate the permitting. This strategy will help to identify potential agency concerns early, minimize potential delays, and compress the environmental permitting duration, which is a critical**

path activity. We will utilize our current relationships with the agencies that were established during the I-95 SB RRC Project. Some of our avoidance and minimization efforts are summarized below:

- Design relocates or eliminates BMP #3 from the RFP location avoiding over 400 lf of stream impact located within the cloverleaf at the Route 17 intersection.
- Design utilizes a MSE wall at Station 5635 avoiding the need to extend the existing box culvert and eliminating 40 lf of stream impact.
- A shift in the location of the northbound lanes enables a modification to the causeway design that reduces the volume of fill material within the Rappahannock River currently being used for the new Southbound bridge construction.
- Compressed schedule and Unique Milestone Date of February 14, 2023 for removal of the temporary causeway, will reduce the amount of time the causeway will be in the Rappahannock River.
- Our Team has developed an Early Works Package that allows tree clearing and grading to begin early in the project and avoids impacts to wetlands and WOUS..
- Our Team has secured access down to the Rappahannock River through a formal agreement with the City of Fredericksburg. We have already constructed and permitted access road improvements and implemented a safe, dedicated path through the construction zone for trail users and comprehensive protective measures for the historic Rappahannock canal and lock.

We will continue to analyze and implement additional cost-effective avoidance and minimization measures, to minimize the potential for project delays from permitting.

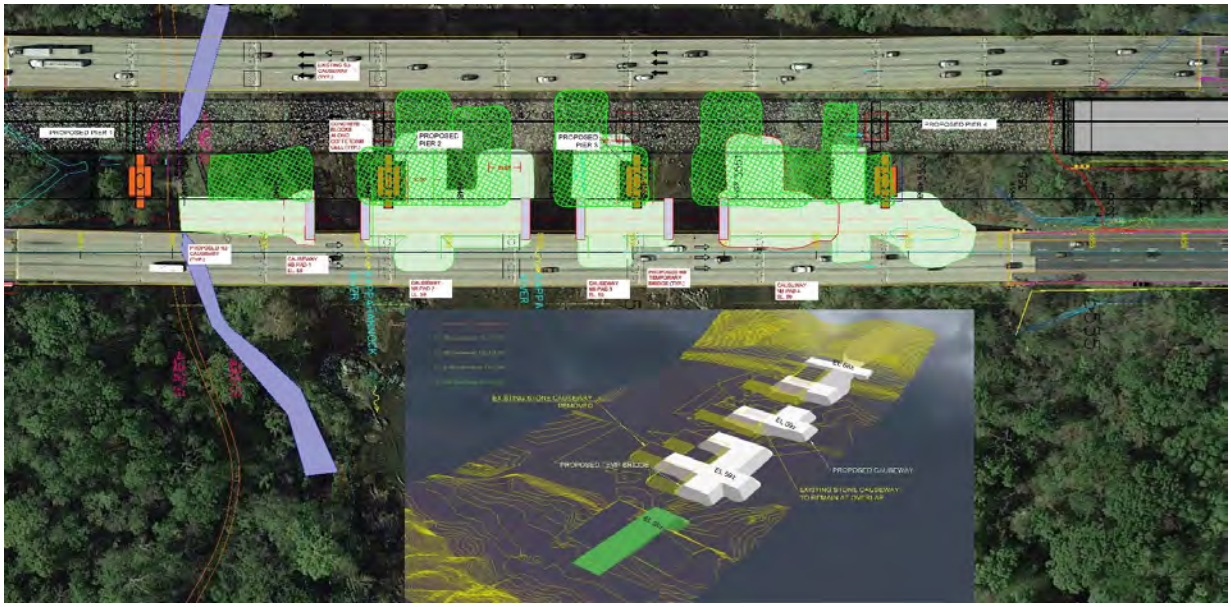


Figure 4.4.1.2 *Proposed Causeway/Temporary Bridge Modification Concept for Rappahannock River Bridge Construction. Modification will reduce the amount of fill and footprint area within the Rappahannock River.*

Early Agency Involvement in Design. We will begin coordination with the permitting agencies (USACE, DEQ, VMRC, USCG) and the other consulting/approval agencies (EPA, USFWS, NMFS, DHR, DGIF, DCR, VDACS, VIMS) immediately upon NTP to pro-actively address avoidance and minimization measures, discuss the modifications of the existing Rappahannock River causeway, discuss the SPGP and GP permit potential, get buy-in for the mitigation measures and compensation requirements, establish special status species survey parameters and alternate Time of Year (TOY) measures, and minimize potential delays.

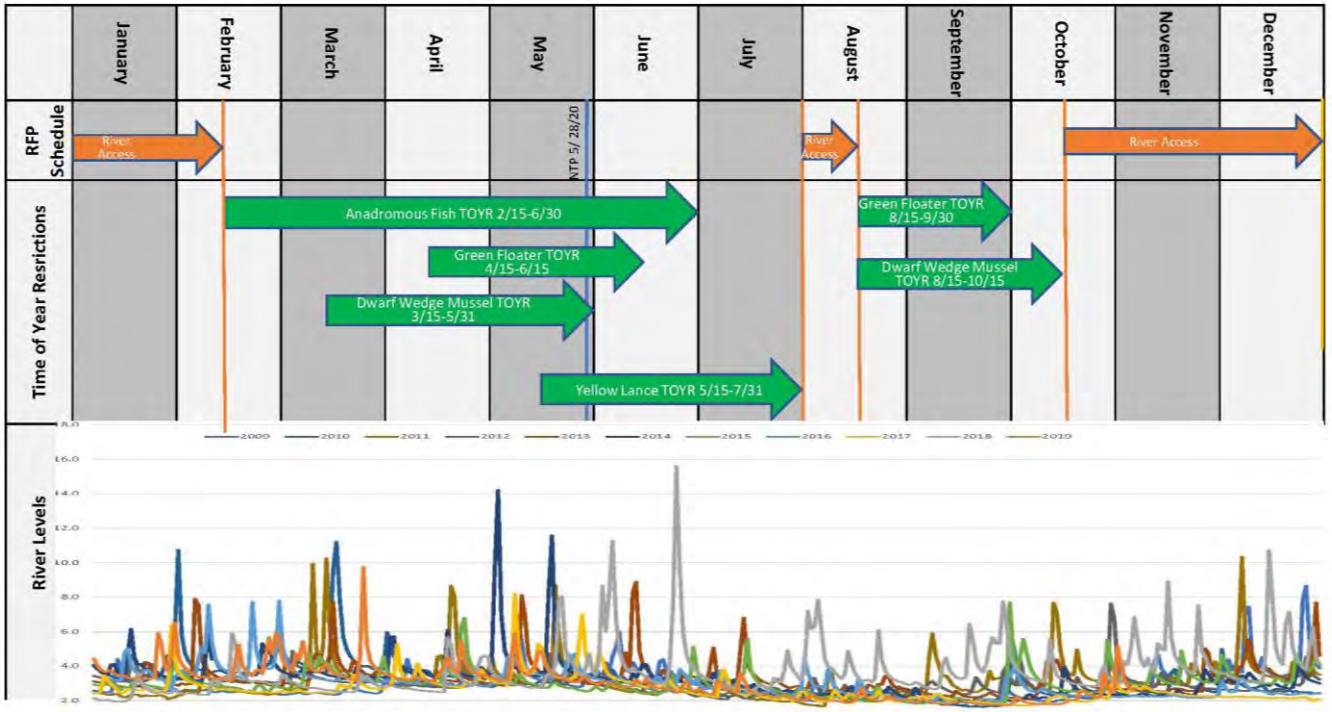


Figure 4.4.1.1 *Time of Year Restriction for River Access*

Our Team has already established a line of communication and developed working relationship with the agencies and all project stakeholders during the I-95 SB RRC Project. We will continue to utilize this line of communication and these relationships to facilitate a seamless transition into the I-95 NB RRC Project. Our proactive approach will also ensure that the permits are "reasonable" and do not present conditions or limitations that negatively impact the constructability of the project.

Identify Suitable Mitigation Early in the Design. The Team will work with the regulatory agencies to find acceptable compensation for unavoidable impacts to jurisdictional wetlands and waters. We have already consulted with the approved banks in the appropriate HUC code to ensure that available credits for all the types of wetland and stream impacts are available. In addition, we will get concurrence from the agencies that compensation for temporary wetland and stream impacts and impacts to jurisdictional ditches will not be required. This will ensure our permit application is processed quickly and avoiding project delays.

Environmental Permit Compliance Monitoring During Construction. The Team will monitor environmental compliance during construction as required by the environmental permits to minimize potential permit compliance issues and potential delays due to environmental deficiencies. **The Team formally extends stop work authority to all project personnel onsite for quality, environmental compliance, health and safety** by issuing cards with contact information for company executives for notification and reporting purposes. **As an example, this was done during the I-95 SB RRC Project where all work was stopped for an entire day so the Team could concentrate on inspecting all E&S measures along the project corridor. This enabled the Team to identify and correct deficiencies and potential E&S issues. In addition, self-reporting permit compliance issues to the agencies is also an important component of our Team's monitoring program.** Wagman's onsite personnel keep in close contact with our environmental team to


WAGMAN
General Construction | Heavy Civil | Geotechnical

STOP WORK AUTHORITY

I have been asked and authorized to take on the responsibility without fear of reprimand or retaliation:

To immediately STOP any work activity that is not in accordance with the approved work plan, compromises quality, or presents a danger to myself, my co-workers, the environment, or the public;

Out of care and concern for myself, my family, and my co-workers, I will voice my opinion on safety issues to supervision.

Michael Glezer
President/CEO
2/9/18

avoid and minimize compliance issues. In accordance with our EMP/EHSP, the Team will use exclusion fencing/flagging and signage around resources/areas of concern to ensure they are not impacted by construction. This will protect resources such as non-impacted wetlands and the historic Rappahannock Canal and the Canal Lock #1/Minor' Lock.

The Team will develop a VDOT approved Erosion and Sediment Control (ESC) Plan, Stormwater Management Plan (SWM) and Stormwater Pollution Prevention Plan (SWPPP) and conduct the compliance inspections required by the VDOT Standards and Specifications and permits. More details about the ESC, SWPPP, and SWM Plan are provided in **4.3.1(E)**.

Approach and Solution to Environmental Conditions/Areas of Concern within the Project Footprint

The Team will avoid and minimize the impacts to the environmental resources within the project corridor. The Team has developed a plan and schedule that will utilize our Team's existing in-depth knowledge of the environmental conditions/areas of concern to deliver the Project on a compressed schedule.

As shown in the Table 4.4.1.3, the Team has identified key Environmental Conditions/ Areas of Concern within the Project footprint, analyzed the risk to that environmental condition/area of concern, and identified avoidance and mitigation strategies to avoid adverse effects.

Environmental Condition/Area of Concern	Avoidance, Minimization, and Mitigation Strategy
Cultural Resources	• The bridge design across the Rappahannock River avoids impacts to historic resources including the remnants of the Rappahannock Canal (DHR Inventory No. 111-0134-002/44SP0064) and the Canal Lock #1/Minor' Lock (DHR Inventory No. 111-0134-001/44SP0074). • Construction access across the Navigation Canal and Canal Lock #1 will be limited to areas that are already protected from the I-95 SB RRC Project and where only below-ground remains of the Rappahannock Navigation system components survive. • Preliminary and final design bridge plans in these areas will be submitted to VDOT and DHR for approval. • These resources will also be identified on the design plans and the EMP/EHSP as areas of concern to be avoided to further protect them.
Section 4(f) resources	• Our Team has established working relationships with all stakeholders and will continue to coordinate project details with these stakeholders during design and construction. • The design incorporates minimization and mitigation measures to maintain the de-minimis effect to 4(f) resources/recreational facilities within the project corridor. We have already implemented the protective measures for construction staging and access near the trail and the Rappahannock canal and locks • Affected trails and recreation lands will not be permanently interrupted by the proposed design. This includes the Fredericksburg I Battlefield, City-Owned Recreational Lands, Pool Pass Trail, Scout/Embry/Rappahannock Canal Trail, and the Proposed Cannon Ridge-Ferry Farm Trail. • No suspension of pedestrian and bicycle traffic on existing trails. All trail crossings are currently established with appropriate signage for the I-95 SB RRC Project and will remain in place. • Any limitations of access to trails will be coordinated with local stakeholders. • All disturbed areas will be fully restored following construction activities. • The project will not impact the existing recreational fields located in the project area. • Coordinate any applicable design changes with VDOT to support re-evaluation of the 4(f) documentation provided by VDOT.
Noise	• Complete and furnish a final Noise Analysis Design Report (NADR) for all noise sensitive receptors identified in the project area. • Conduct final design noise analysis in compliance with the VDOT State Noise Abatement Policy, VDOT Highway Traffic Noise Impact Analysis and Abatement Guidance Manual. Design and construct noise walls recommended by FHWA, Chief Engineer and Noise Abatement Design Report. • Our noise subconsultant HMMH will review the noise barrier plan and certify that it meets the noise abatement requirements and VDOT's sound wall policy. • Incorporate ATC for Earth Berm as partial replacement for noise barrier C thereby reducing maintenance and balancing the earthwork on the project.
Wetlands and Waters of the US (WOUS)	• Design relocates BMP #3 within the RFP to avoid 470 lf of impact to a jurisdictional stream. • Design utilizes MSE walls at Station 5635 avoiding 40 lf of stream impact for box culvert extension. • Unique Milestone of February 14, 2023 to remove causeway from the Rappahannock River

	• Continue to incorporate avoidance and minimization measures through agency workshops to minimize permanent impacts. • Design modification will reduce the footprint of the causeway within the Rappahannock River minimizing impacts. • Early coordination with the agencies will be conducted to refine/eliminate the TOY restrictions. The project schedule will accommodate the TOY restrictions recommended by the reviewing agencies. • Complete wetland/WOUS delineation for construction access, laydown, staging, and borrow sites • Develop restoration approaches for temporary impact areas and use of mitigation banks for required compensation for permanent impacts. • Use exclusion fencing and/or flagging along the non-impacted wetlands and historical sites to protect during construction.
Hazardous Materials	• EHSP will include a Spill Prevention Control & Countermeasure Plan • The Team has existing on-call contracts with Clean Harbors for emergency spill response and clean up (24/7) • Compliance with Section 411.01 in the 2007 Road and Bridge Specifications for Type B structures • Follow VDOT Special Provisions for asbestos inspection and abatement • Conduct Phase I and Phase II Environmental Site Assessments (ESAs) (if needed) for ROW in accordance with ASTM Standard E 1527-13 for ROW and VDOT Special Provision for Phase I and Phase II ESAs for Design Build Projects.
Miscellaneous Environmental Areas of Concern	• The design traffic control plan for the river, Aids to Navigation (ATON) shall include signage to direct recreational users of the river during the construction of the bridge as is currently being provided for I-95 SB RRC bridge construction. A safe passage for the recreational trail and river users shall be maintained throughout the life of the construction project. • The Team is fully compliant with the new OSHA Silica Standards for worker protection
Special Status Species	• Coordinate with agencies early in the environmental permitting process, update IPaC etc. information, conduct surveys/habitat assessments of borrow sites, staging, and laydown areas. • A 4(d) self-certification submittal to the USFWS for elimination of TOY for tree clearing for northern long-eared bat. Bat inventories will be performed to determine their presence on the existing bridges. These inventories will be conducted every two years or until the commencement of construction activities on bridges. • Coordinate mussel survey and TOY restrictions with reviewing agencies concerning anadromous fish, dwarf wedge mussel, green floater, and the yellow lance mussel. • EHSP incorporates TOY restrictions and environmental compliance training for project personnel.

Table 4.4.1.3. *Environmental Mitigation Strategies for Areas of Concern/ Environmental Conditions*

Project Schedule Integration with Environmental Milestones

Obtaining environmental permits and environmental approvals in a timely manner is always a schedule and planning priority for any project because construction cannot start in jurisdictional areas until permits are issued. Our Team's extensive knowledge gained from the I-95 SB RRC Project will allow an efficient transition into the I-95 NB RRC Project enabling a compressed schedule. As described below, we have already integrated the environmental activities with the schedule.

Integration of Environmental Milestones into Project Schedule. We have integrated key environmental permits, environmental hold points, and approval activities into the schedule, including:

- JPA application preparation and submittal- 28 calendar days duration
- JPA application review and issuance of environmental permits- 185 calendar days duration. This is identified as a critical path activity and Hold Point (per the RFP)
- EQ103, EQ200, EQ201 reviews 21 calendar days
- Phase 1 ESAs for ROW (Hold Point in contract) 149 calendar days duration
- Environmental permit compliance monitoring- duration of the project construction.

The Team will track the environmental activities in the project schedule throughout design and construction to ensure that the schedule is met and that permit acquisition does not delay the project.

Account for Time of Year Restrictions in Project Schedule. We have identified TOY restrictions, including a potential TOY for in-stream work due to the migration of anadromous fish and multiple mussel species and a possible TOY for tree-clearing for the northern long-eared bat (NLEB), which we believe can be eliminated. **Our aggressive schedule will enable our Team to begin the causeway modifications early in the Project advancing the construction schedule for the bridge and Project delivery. In addition,**

we have coordinated with the regulatory agencies for alternate mitigation conditions (such as physically relocating the river mussels outside of the impacted area) for these TOYs so that they do not adversely impact Critical Path activities such as causeway modifications and bridge construction.

4.4.2 Utilities

The approach that the Team uses for utility coordination, relocation and adjustments is to have clear, frequent open and honest communication between the utility companies and the Team. We believe that is the key to reducing the risk that utility conflicts and relocations pose to a project's schedule and budget. With that in mind, the Team has already begun coordinating with the utility companies that have infrastructure within the project limits. The Team held a project specific utility coordination meeting on November 6, 2019, similar to a UFI meeting, and invited all of the utilities present in the project area. We have also held phone discussions as well as one on one meetings with the utility companies. This coordination effort has provided the Team a thorough understanding of the existing utility systems and possible impacts by the proposed design concept.
Upon award of the contract, the Team will follow the process shown in Figure 4.4.2.1 to verify and finalize our utility relocation plan. We will build on our initial coordination with the utility companies and make sure we have collected all available utility record information including easements. Utility designation (mapping) will be performed at a Quality Level B to determine the approximate horizontal utility locations of the utilities and of any new utilities not included in the RFP SUE files. Potential conflicts will be further evaluated by performing utility location services (test holes – Quality Level A services) to determine the exact horizontal and vertical location of the utilities. When the test pits are performed, the field marking by the Miss Utility One Call System will be evaluated to determine if the utilities shown on the plans are correct and if any undesignated utilities are found. This strategy has uncovered many undesignated utility systems on previous projects.

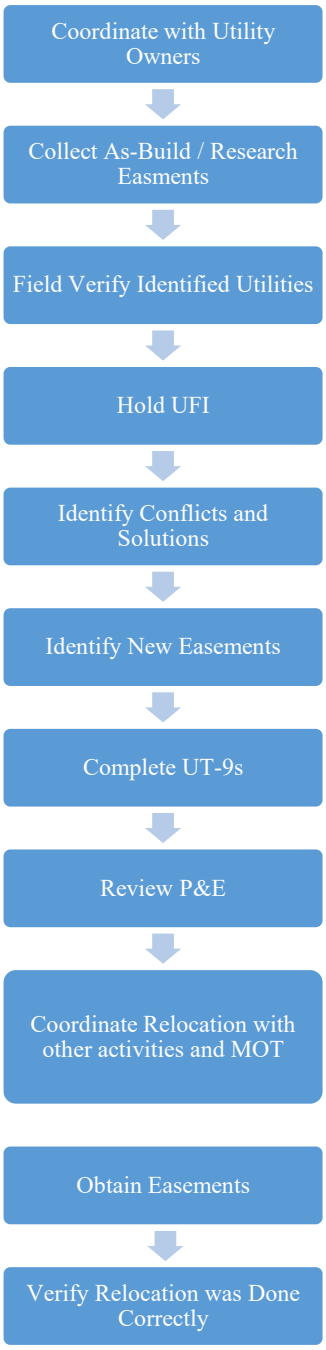


Figure 4.4.2.1
Steps for Utility Relocations

As the design progresses, we will re-evaluate opportunities to design around the facilities and understand precautions that will be required to protect them in-place or identify the facilities that need to be relocated. The Team including both our design and construction utility coordinators will then hold a UFI meeting with the utility owners. At the UFI meeting, consensus on utility adjustments and relocations need, prior rights, and relocation schedule will be reached. If utility relocations will be required, then the least invasive and least time-consuming options will be performed. After the meeting, the Team will prepare UT-9s, coordinate with the VDOT Utility Manager, incorporate necessary easements into the ROW plans and prepare master agreements for the utility relocations. All utility companies will be reminded of the Buy America requirements.

Upon ROW NTP, our ROW Team will acquire any necessary easements while P&Es are being prepared by the utility companies. We will review the P&Es for conformance with our design plans and construction schedule to submit to VDOT for approval. We will hold at least bi-monthly coordination meetings with the utility companies and/or their design engineers to ensure that the relocations stay on schedule. All coordination will be documented in RUMS.

The Team will then hold kickoff meetings with each utility company prior to relocations taking place to review ongoing construction activities, environmental requirements, and safety measures. Wagman Team inspectors will proactively survey the utilities as they are being relocated to verify they are constructed to the

correct horizontal and vertical locations per the approved P&Es. This will identify any mistakes early and allow for immediate correction maintaining the project schedule.

Based on our research and initial utility coordination the Team has identified numerous potential utility conflicts with the proposed design. A Utility Conflict Matrix was created for this project and is shown in Table **4.4.2.2**. The Utility Conflict Matrix identifies each potential conflict by type, owner and whether an adjustment or relocation is required. Each utility conflict listed also has an identification number and baseline station to assist in locating them on the Roadway Conceptual Plans in Volume II. **The Team has evaluated each potential impact and identified those that require adjustments or relocations. These adjustments and relocations have been included in our Technical and Price Proposal**. At this time there are no know utility betterments requested with this project.

This project has several water, sanitary sewer, telephone, fiber optic and natural gas main underground crossings as well as overhead power, telephone and catv facilities. All these systems are distribution grade facilities. The water, sanitary sewer and gas mains were installed previously and have steel casings around the piping material. The catv and the telephone facilities were installed with conduits housing their cables. The affected utilities on this project include:

- Dominion Energy
- Comcast
- Cox Communications
- Verizon Bell Atlantic
- Stafford County Utilities
- City of Fredericksburg
- Columbia Gas
- Summit IG
- VDOT ITS
- Transurban ITS (future)

Dominion Energy

There are several overhead electrical distribution crossings over I-95 and they are located near Fall Hill Road, just north of the Rappahannock Bridge, the Route 17 Interchange and north of Truslow Road. These crossings include a combination of power, catv and telephone cables attachments to the poles.

The crossing at Fall Hill Road has power and catv cables and there is an existing clearance issue with the Comcast and the Cox Communications facilities that is being resolved with the current I-95 SB RRC Project. The taller pole has been installed and the catv companies are scheduling their contractors to attach their cables higher. A 10’ taller pole was installed to ensure that this project has the required roadway clearance.

The crossing that is north of the Rappahannock Bridge has power and telephone facilities attached to it and there is sufficient clearance above our proposed roadway profile. Our designed roadway grades will be adjusted to avoid having to relocate the pole on the eastside of the interstate.

The crossing that is just south of the Route 17 Interchange has power and catv facilities attached to the poles. This crossing also has an existing clearance issue which is being resolved by Cox Communications installing conduits under I-95, which has already been completed, and then they will remove their cables from this crossing. The new cable installation and the splicing is scheduled to be completed in the spring of 2020. This work is being performed for the current I-95 SB RRC Project. This project does create a conflict with the roadway clearance since the proposed lanes are in a fill section, so the pole on the east side of the interstate will be replaced with a taller pole during this project.

The crossing that is north of Truslow Road has power and telephone facilities attached to the pole. This work has been transferred to the FredEx project.

There is a distribution pole that is on the northside of Route 17 within the interchange that is adjacent to the proposed curbing and sidewalk for the northbound Ramp C to I-95. This pole creates a conflict with the curb and will have to be relocated.

There is also a power service lift pole to a flashing light warning sign on the outside shoulder of the I-95 NB off-ramp to Route 17 east. This pole is in conflict. The conflict will be resolved when the power service is removed for the sign.

Verizon Bell Atlantic (VBA)

There is a telephone system that is an underground crossing south of Fall Hill Road. The crossing is not expected to conflict with the proposed roadway, but the hand holes may have to be adjusted. Test pits will be performed to establish the actual horizontal and vertical location so it can be protected in-place.

VBA has a large diameter duct bank that is located within the limits of the Route 17 Interchange. This facility is not expected to be impacted by the roadway improvements. Test pits will be performed to determine the actual horizontal and vertical location of the facility if there is any work in its vicinity.

There are two poles on the southside of the Route 17 Interchange with I-95 that will have to be adjusted to allow for grade cuts. The poles will be changed out to taller poles set deeper to allow for the grade cut.

Additionally, an underground telephone system exists on the northside of the Fall Hill Road crossing of I-95. The conduits and the handholes are not in conflict. Test pits will be performed to verify the location and depth, so it can be protected in-place.

Stafford County Utilities

There are water and sanitary sewer facilities that cross I-95 on the northside of the Rappahannock Bridge. These systems include 30” and 12” water mains as well as 30” and 18” sanitary sewer mains. None of these facilities are expected to conflict with the proposed roadway. Test pits will be performed to determine the actual horizontal and vertical locations, so the systems can be protected in-place.

There are also water and sanitary sewer facilities located within the Route 17 Interchange to include a 12” water main that is not anticipated to be in conflict. The Team will continue the vibration monitoring for this facility in the same manner as currently being performed for the I-95 SB RRC Project. We have already developed emergency procedures (including contingent MOT plan and has obtained emergency repair materials that are stored on site) in conjunction with Stafford County to implement in the instance this utility is compromised. There are also small diameter force mains that were found to be abandoned with the current I-95 SB RRC Project.

There is a manhole located within the proposed curb line for the northbound ramp to I-95. The manhole connects to the abandoned force mains and will be abandoned in-place or adjusted to resolve the conflict.

City of Fredericksburg

There are a couple of water main and sanitary sewer crossings located between the Route 3 Interchange to just north of the Fall Hill Road crossing. The water mains are 24” and 6” facilities; the sanitary sewer facilities are 15” and 4” diameter pipes. None of these systems are expected to be in conflict but test pits will be performed to establish the horizontal and vertical locations, so the facilities can be protected in-place.

Columbia Gas

There is an 8” distribution main that is near the Route 3 Interchange, and it is not expected to conflict with the proposed roadway. Test pits will be performed to establish the actual horizontal and vertical location, so it can be protected in-place.

The 4” main that is located within the limits of the Route 17 Interchange is not anticipated to conflict with the proposed improvements. Test pits will be performed if there is any work in the vicinity of this pipeline to determine its actual horizontal and vertical location so it can be protected in-place.

There is a small diameter gas service that will have to be lowered for the motel at the Route 17 Interchange.

Summit IG

This system is located in the outside shoulder of the northbound lanes of I-95. The conduit system meanders into the lane, shoulder, ditch line and under some of the proposed drainage. Over a dozen hand holes have already been deemed to be in conflict as well as several hundred feet of the main trunk line. It is our understanding that the adjacent Fredex Project will require several thousand feet of this system to be relocated and the limits of this relocation work will fall within this project. So, in an effort to minimize impacts, duplication of efforts and avoiding conflicts, the relocation efforts for both projects will be closely coordinated to accomplish this task.

Early and frequent coordination with the affected utility companies will be performed in order to successfully manage the utilities on this project. Plans will be distributed and meetings will be held to resolve issues in a timely manner. Individual and a master schedule will be created, so the relocation efforts are performed to maximize resources and to keep the project on track. Previous experience and strong working relationships with the affected utility companies will be used to make this project a success.

VDOT ITS/Electric/Overheight Detection System

There are facilities near the Route 3 Interchange that are not anticipated to conflict with the proposed improvements. Test pits will be performed to determine the actual horizontal and vertical location and the facility will be protected in-place. There are power lift poles on the northside of the Route 17 Interchange with I-95 that will be removed when the traffic signal and the overhead sign structures are removed. The I-95 NB overheight detection system will be maintained until it is removed from service upon completion of B608.

Transurban ITS

As part of the FredEx project, Transurban is installing new ITS infrastructure within the project limits. The Team will coordinate the planned location of Transurban's new facilities so that they do not conflict with our proposed improvements.

The Team has identified 39 potential utility locations that could conflict with the proposed construction, however we have determined that 14 are deconflicted. As such, there are 25 known utilities that are in conflict and require relocation or mitigation per the attached chart.

Identifier on Road Plans	Utility Owner and Type	Construction Baseline Station	Conflict Description	Solution or Action	Risk Level	Schedule Impact
			I-95 South of Rappahannock River Bridge			
1	Summit IG - 3-1.5" Conduits Fiber Optic Cables	4388+00 to 4400+00	Handholes in Conflict with Proposed Construction	Relocate handholes	Low	None
			I-95 North of Rappahannock River Bridge			
1	Summit IG - 3-1.5" Conduits Fiber Optic	4572+70, 4643+43 4645+00 to 4661+00 4659+69	Handholes and Communications to Traffic Camera in Conflict with Proposed Construction	Relocate Facilities	Moderate	None
2	VDOT ITS - 1-2" Conduit Power/Comm Service	4572+70, 4659+69	Power Facility in Conflict Handholes and Cabinet in Conflict with Proposed Construction	Relocate Power to Sign Relocate Handholes and Cabinet	Moderate	None
3	VDOT ITS - 1-2" Conduit Power	4588+38	Power for Overheight sensor	Relocate Overheight Sensor and Power Handhole	Low	None
4	Dominion Energy - 3 Phase OH Power Cox Communication - Fiber Optic	4589+85	South of Rt 17 Interchange Roadway Overhead Crossing; Attached to Dominion Energy Poles; Low Clearance at Proposed Lanes	Replace Distribution Pole on Eastside of I-95 with Taller Pole; Cox Communications Cable is Being Placed	Moderate	None
5	VDOT ITS - Power/Communications	4591+82	Power for Overheight sign/lights	Relocate Overheight Sign and Power Service		
			Route 3 Ramp C			
1	Summit IG - 3-1.5" Conduits Fiber Optic	5443+50, 5456+45, 5460+81 5468+82 5470+00 to 5473+50 5484+00 to 5485+50 5496+00 to 5502+00 5507+50, 5509+40	Fiber Optic line and Handholes in Conflict with Proposed Ramp Construction	Relocate Fiber Optic Line and Handholes	Low	None
2	Summit IG and VDOT - 2-1.5" Conduits Fiber Optic and Underground Electrical	5449+10, 5451+45 5452+73, 5453+91 5456+45, 5484+00 5500+00	Handholes and CCTV Cameras in Conflict with Proposed Ramp Construction	Relocate Facilities	Low	None
			I-95 NB CD			
1	Summit IG - 3-1.5" Conduits Fiber Optic	5519+10, 5554+10 5619+00 to 5626+75	Potential Conflict with Guardrail Post	Perform Test Pits to Verify Depth and Locations. Reloate Fiber Optic Facility as Necessary.	Moderate	None
			US ROUTE 17 & I-95 Interchange (South Side of Route 17)			
6	VDOT - Power Service	9005+90	Power Service Pole in Cut Slope on Ramp D	Remove Service Pole with the Flashing Sign	Low	None
8	Verizon Virginia - Telephone Pole	9008+95, 9010+24	Telephone Pole in Cut Slope and Adjacent to Proposed Sidewalk	Relocate with Taller Pole; Installed Deeper to Allow for the Grade Cut, Lower Service Drop as Necessary	Moderate	None
9	VDOT - Traffic Signal	9010+27	Traffic Control Box in Conflict with Proposed Sidewalk	Relocate Box if Traffic Signal is Still Active	Low	None
7	Columbia Gas - 2" Gas Service	9008+75	Natural Gas Serve to Motel	Perform Test Pit to Verify Depth and Protect In-place; Relocate Service Drops as Nessesary	Low	None
			US ROUTE 17 & I-95 Interchange (North Side of Route 17)			
10	VDOT ITS - Communication	8001+74	Traffic Control Box In Conflict with Pavement Widening	Relocate Box	Low	None
11	VDOT Lift Pole - Power	8002+40	Power Lift Pole To OH Sign Structure In Conflict with Pavement Widening	Remove Service Lift Pole when the OH Sign is Relocated	Low	None
11	VDOT Lift Pole - Power	8002+85	Power Lift Pole for Traffic Signal In Conflict with Pavement Widening	Relocate Pole if the Traffic Signal is Still Active	Low	None
12	Stafford Utilities - 8" Sanitary Force Main	8004+84 to 8006+50	Manhole in Conflict with Curb and Gutter	Extend the 8" Sanitary Main into the Shoulder Past the Ramp	Moderate	None
13	Dominion Energy - Power Pole	8005+40	Distribution Power Pole Between Curbing and Sidewalk	Relocate Distribution Pole	Moderate	None
1	Summit IG - Fiber Optic	8006+62	Handhole Located in Pavement Widening for Ramp C	Relocate Spur Handhole	Low	None
14	VDOT - Power Service	8012+00	Handhole in Cut Section	Relocate Handhole	Low	None
15	Stafford Utilities - 12" Water Main	8026+70	Water Main in Proposed Cut Slope	Perform Test Pits to Verify location and Depth; Protect In-place or Relocate as Required	Low	None
16	Verizon Virginia - Telephone	8028+93	Handhole in Proposed Travel Lane	Relocate Handhole	Moderate	None
17	VDOT Traffic Signal System	8029+55	Traffic Control Box in Proposed Travel Lane and Signal Pole in Proposed Shoulder	Relocate Box and Signal Pole	Low	None
			Option 1 - Auxiliary Lane between Truslow Road and Centreport Rd			
1	Summit IG - 3-1.5" Conduits Fiber Optic	4695+93, 4703+09, 4719+90, 4734+60	Fiber Optic Line and Handhole in Proposed Roadway	Relocate Facilities	Low	None
2	VDOT - Underground Electrical	4712+99, 4716+65 4719+90, 4723+57 4728+47, 4733+27	Handholes in Proposed Roadway	Relocate Handholes	Low	None

Impacted utilities requiring adjustments or relocations

Table 4.4.2.2 *Utility Conflict Matrix*

The Team has developed best practices related to utility coordination through the successful delivery on time and within budget on numerous interstate projects for VDOT including DB projects. One of these practices is the early evaluation of known utilities as well as identification of any unknown systems. This allows time to meet with utility companies, the designers and construction managers to resolve conflicts to everyone's satisfaction.

Utility Relocation and Delay Risk Management

We have managed the utilities on other heavily congested VDOT projects like I-95 SB RRC, Stringfellow Road, Route 1/123 Interchange, and Wagman's Route 7 DB Bridge project over the Dulles Toll Road and have been very successful in resolving issues early. This success was accomplished by minimizing relocation efforts through design changes, alternate construction means and methods such as, constructing infrastructure (conduits and boxes) for use by 3rd party utility companies to maintain schedules, and lowering systems in-place to avoid splicing delays.

Mitigation strategies to offset the potential impacts of utility relocations exceeding estimated timeframes:
The Team fully understands that utility companies and their on-call designers and on-call contractors are busy and may have many other commitments and priorities. We also understand they have lead times for obtaining materials and scheduling crews and may have seasonal outage windows. All of these can impact agreed upon schedules when a utility relocation may get behind schedule. We will utilize the following strategies to eliminate or minimize a delayed relocation from impacting the schedule.

- Foremost the Team will work hard to prevent delayed relocations by
  - Early engagement with utility owners (already held preliminary UFI November 6, 2019)
  - Design avoidance measures
  - Mandatory bimonthly updates from utility owners on status of P&Es
  - Prioritizing acquisition of any required utility easements
  - Bimonthly utility matrix update and utility coordination status report
  - Continued design evaluation for avoidance opportunities
  - Develop a base schedule with utilities off the critical path (submitted schedule does this)
- Manage delayed relocations by
  - Keeping all utility coordination and documentation in RUMS up to date
  - Meet with utilities and the VDOT Utility Manager to discuss opportunities for schedule recovery through reallocation of regional resources or use of additional crews.
  - Our CPM provided in Section 4.6 has sequenced all construction activities to ensure utility relocations are not on the critical path.
  - The Team can self-perform time consuming work such as the installation of conduit and hand boxes if required.

Mitigation strategies for unidentified/non-located utility being discovered during construction:
Even with a thorough SUE identification process and effort, unidentified utilities could be discovered during construction. The Team will implement the following strategies to maintain the safety of the workzone and prevent delays from unidentified utilities:

- The Team will work hard to prevent unidentified utilities by following the discovery steps for identifying potential utilities including research, coordination and designation.
- Field verifying horizontal and vertical location of all relocated utilities by QC inspection staff as they are placed to ensure no conflict with future construction activities.
- Construction crews will call Miss Utility to remark utilities prior to beginning construction activities within an area and visually inspect the construction area for signs of utilities being present.
- If an unknown utility is encountered crews will
  - Stop work immediately
  - Contact Matt McLaughlin, Utility Coordinator, Wagman's Assistant Utility Coordinator (Project Engineer), and the VDOT Utility Manager
  - Determine owner
  - Hold a field meeting with the all parties to determine if the line is active or abandoned. No construction activities will continue in the area until this is determined.
- Partner with utility owner to resolve conflict in an expedient manner
- Evaluate impact and magnitude to current work
- Evaluate and manage schedule to look for opportunities outside the conflict area to continue work while relocation is taking place.

Utility Relocation Integrated with Project Sequencing and Schedule

The submitted project schedule has been established to remove utility relocations from the critical path. Three examples are as follows:

- Required Summit IG relocations will be performed concurrently with other activities in the same area.
- The Team will work around any clearance concerns of the sag conditions for the aerial crossing of I-95 until permanent adjustments are made by:
  - Flagging and signing the lines and
  - Using low profile construction equipment to excavate median where appropriate

- There are significant portions of the project such as large portions of the median of I-95 that do not require relocations. The project's schedule advances construction activities in these areas.

4.4.3 Geotechnical

The Team has identified geotechnical risks on this project utilizing the borings and test results contained in the Geotechnical Data Report (GDR) provided with the RFP. Other geotechnical data provided with RFP Supplementary Data Package, published geology maps, and the team's extensive knowledge of the soils in the area were also used. The Team also took advantage of the opportunity to view selected geotechnical samples from the GDR exploration on January 16, 2020 in the VDOT Fredericksburg Office.

The Team has identified the following geotechnical risks associated with the project and has developed possible mitigation efforts. Our team utilizes a holistic approach to addressing geotechnical risk by working closely with all disciplines to find an optimal solution for the overall project from preliminary design through construction.

Risk Related to Existing Slope North of the Rappahannock River: The RFP plans indicated that excavation into the existing 2H:1V cut slope between approximate Stations 5574+00 and 5583+00 on the east side of the existing I-95 NB lanes is anticipated to widen the outside shoulder and construct a ditch. The slope in this area is up to about 45 ft high, classifying it as a critical slope in accordance with Chapter III of the VDOT Materials Division Manual of Instructions (MOI). Borings were performed as part of the GDR at the toe of the critical slope, but no GDR borings were performed at the top of this slope.

Based on the geotechnical borings from I-95 SB RRC included in the supplementary data package, borings taken from the top of the mound within the median and within the slope on the west side of I-95 NB Lanes encountered highly plastic Potomac Formation soils. This agrees with available geology maps that indicate Terrace deposits over Potomac Formation over Residual soil in this portion of the site. Potomac Formation silts and clays are anticipated in the proposed cut slope east of I-95.

Mitigation strategies: Although the existing slope has been stable since the original construction of I-95, the MOI requires that residual shear strength neglecting cohesion be used to evaluate Potomac Formation silts and clays within cut slopes. To mitigate this risk, the Team will design the shoulder widening and ditch to avoid cutting into the existing slope where Potomac Formation silts and clays are anticipated (below El 205). Additionally, we will perform the necessary classification and strength testing to evaluate the slope according to the MOI and provide recommendations for stabilization as needed.

Risk Related to the Route 17 - Truslow Slope: We understand that VDOT is planning to perform additional subsurface exploration for the proposed cut slope located between Route 17 and Truslow Road.

Mitigation strategy: The Team understands the risk associated with cut slopes located within the Potomac Formation and will develop a solution to accommodate the project schedule and budget.

Risk Related to Unsuitable Materials: Unsuitable material is defined in Section 2.6.4 of the RFP and additional requirements for minimum subgrade Resilient Modulus is in Section 2.6.1 in the RFP.

The GDR included 406 tests for the percentage of material passing a #200 sieve and 355 Atterberg Limit tests. Based on the RFP definition of unsuitable material, about 17% of soil tested would be considered unsuitable due to classifying as highly plastic (≥50% passing the #200 sieve and LL≥50).

The GDR also included 24 Standard Proctors, 23 California Bearing Ratio (CBR), and 23 Resilient Modulus tests on bulk samples. Only 14 of these bulk samples were taken within the proposed project footprint and only 4 samples met the criteria for use within 2 ft of pavement subgrade. In general, the samples were considered unsuitable due to low CBR (8 samples) and being too wet (6 samples).

Mitigation strategies: The Team has identified various areas of potentially unsuitable soils where undercut or other mitigation is tentatively anticipated based on the available project information. Our subsurface exploration will include soil classification, natural moisture content, CBR testing in accordance with VTM-8, and Resilient Modulus determination to identify the locations of unsuitable materials. The validity of the CBR data provided in the GDR is questioned by the Team since half of the samples having a CBR less than 5 did not meet the compaction requirements outlined in VTM-8. As such, the Team anticipates re-testing the soil that had low CBR values that were not compacted to VTM-8 requirements.

Unsuitable soils (except for those containing deleterious materials) will be improved by drying, mixing and/or chemically treating these soils with lime or cement so that they can be reused as compacted fill on this project or alternatively, taken off-site. Where present in roadway cuts, the unsuitable soils will be undercut and replaced with suitable soils stockpiled from other areas on site, or improved by drying, mixing and/or chemical treatment in place. The Team has successfully engineered both soil-lime and soil-cement mixing as remediation options for unsuitable soils on the I-95 SB RRC project and these mitigation strategies will be considered on this project as well.

The Team will develop a subsurface exploration and testing program that will include soil test borings, rock coring, in-situ testing, and laboratory testing to evaluate the on-site soils and mitigate these risks. The results of this program will be combined with the provided GDR data and will be the basis of our final geotechnical engineering reports according to the VDOT Materials Division Manual of Instructions, Chapter III Geotechnical Engineering (MOI Chapter III), and Chapter VI Pavement Design (MOI Chapter VI).

Risk Related to Acid-Sulfate Soils: In accordance with the RFP, structures in contact with on-site soils shall be designed to resist corrosion and to be functional for the design life indicated in the Contract Documents, unless specific testing determines that the soils are not currently or potentially acidic. The acidic nature of the soils is also problematic for establishing vegetative growth, as such, all cut and fill surfaces shall be appropriately treated such that a high quality vegetative cover can be established.

Geology maps indicate that acid-sulfate soils are potentially located in Option #1 (Exit 136 extension), however no acid-base accounting test results were provided in the GDR. If acid-sulfate soils are encountered in this area, this area would have to be mitigated in accordance with the RFP.

Mitigation strategies: Our testing program will include Acid-Base Accounting tests along with pH and sulfur content tests to evaluate the presence and location of acid-sulfate soils. These test results will be used to make recommendations to include; covering acid-sulfate soils with a sufficient thickness non-aggressive fill, avoidance and/or minimization by adjusting the design, and neutralization with alkaline materials per the Acid-Base Accounting Test with a minimum of four (4) tons per acre. Additionally, acid-sulfate soils will not be placed around structural foundations to reduce potential corrosive conditions. Our recommendations will be supported by the appropriate level of field and laboratory testing.

Risk Related to I-95 NB Rappahannock River Bridge Foundations: The GDR included two bridge borings at the proposed abutments and no borings for the proposed piers. The GDR borings indicate a 25 to 35 ft thick layer of Intermediate Geomaterial (IGM) is present over rock at each abutment. Geotechnical data from the adjacent SB RRC Bridge (currently under construction) indicates that the quality of rock present at the land piers (Piers 1 and 4) is extremely variable, and relatively good quality rock is present at the river bottom (Piers 2 and 3). There is a risk that different subsurface conditions could be encountered at bridge pier substructures since no geotechnical data was provided in the GDR. However, the Team excludes the borings at Piers 2 and 3 from scope validation consideration.

Mitigation strategies: Our subsurface exploration program will include borings and rock coring for bridge foundation design. Testing will include unconfined compression tests on rock core for evaluation of the factored bearing resistance for footings. Relatively undisturbed soil samples will also be obtained at this location for strength testing for abutment global stability assessment. Due to the potential of rock quality variability, our Team may utilize geophysical testing at substructure locations.

Risk Related to Route 3 - Ramp C and the Existing Structures: The RFP plans include the addition of Route 3 - Ramp C east of the existing NB lanes. The proposed 2-lane ramp will run parallel to the NB lanes, pass under the existing Cowan Boulevard Bridge, travel adjacent to two existing noise barrier walls, pass under the existing Fall Hill Avenue Bridge, and then converge with two existing I-95 NB lanes, converting the ramp to I-95 NB CD Lanes. The largest risk associated with this ramp is the impact on existing structures including the two existing noise barriers, and two bridges.

Mitigation strategies: The new ramp pavement is anticipated to be up to 16 ft lower than the current grading at the existing noise barriers. Due to the tight roadway geometry, a wall will be needed to limit disturbance of the soils supporting the existing noise barrier walls above the proposed roadway. This wall will be engineered to account for the loading caused by the existing concrete noise barrier.

The proposed ramp passes under both the Cowan and Fall Hill bridges. The Team will monitor these existing structures during construction as required by the RFP; however, our proposed grading is not planned to influence the existing structures negatively.

Risk Related to Stormwater Management: The RFP project design includes bioretention facilities, dry swales, and extended detention basins. The geotechnical risks associated with these facilities include high groundwater, low infiltration rates, and unsuitable soils.

Mitigation strategies: We plan to drill borings and install groundwater observation wells in stormwater management areas as required by MOI Chapter III. Our design will consider seasonal fluctuations in the groundwater table to ensure our BMPs will satisfy the DEQ standard in a manner similar to what we performed on I-95 SB RRC project. In addition, we will evaluate the stormwater facilities for infiltration, if needed.

Risk Related to Replacing the NB CD Lanes over Route 17 Bridge (Option #2) Foundations: The geotechnical risks for the complete replacement of the existing NB CD Lanes Bridge over Route 17 include settlement of existing structures (adjacent bridge and utilities), embankment settlement, and uncertainly related to the location of the existing foundations.

The placement of embankment fill to raise grades for the replacement bridge will cause the underlying soils to settle. Settlement of the underlying soils may result in the settlement of adjacent structures including the NB GP Lanes Bridge over Route 17 (currently under construction) and existing utilities (including a 12" waterline running perpendicular to Abutment B). The embankment/walls must meet the settlement and global stability criteria requirements in the RFP.

The existing NB CD Lanes over Route 17 Bridge was constructed in the 1980s and the foundation plans indicate that the bridge is supported on vertical and battered cast-in-place piles. The as-built plans indicate that the battered piles from the existing structure will likely interfere with the installation of the new bridge foundation at the pier and Abutment B. In particular, the battered piles at Abutment B are 12-inches in diameter with a 4'-1¾", center-to-center spacing. The battered piles at the pier are 12-inches in diameter with a 2'-9", center-to-center spacing. The existing battered piles have the potential to act as a future obstruction and damage the new piles during driving. The as-built information does not provide the detail needed to plan the foundation layout to avoid these obstructions, and the existing piles cannot be evaluated until the bridge is out of commission.

Mitigation strategies: The Team will evaluate the new bridge to meet the design criteria outlined in the RFP. If needed, the Team may utilize a sheet-pile wall to protect existing structures from anticipated settlements, lightweight fill, or other suitable, VDOT approved methods.

Building the new structures while maintaining the existing structures represents a geotechnical challenge, mainly to avoid horizontal and vertical movements that could damage existing structures. The Team plans to provide instrumentation monitoring where necessary so that the effect of new construction on existing structures can be monitored. The Team will install settlement plates to monitor and measure settlement in all bridge approach fills considered necessary in the final GDR.

The new bridge foundations will be designed to avoid the existing foundations based on the RFP plan, with an understanding that field adjustments may be necessary due to the limitation of as-built information on the existing piles. If needed, the Team may perform geophysical methods to assist with avoiding these obstructions during pile driving.

Risk Related to the Geotechnical Subsurface Exploration: Per the RFP, the Team will perform a design-level geotechnical investigation to validate and augment the information included in the GDR. The GDR included a large amount of subsurface data, but a limited amount of laboratory testing applicable to the project. Additionally, the GDR boring logs did not indicate the geologic Formation of the soils encountered.

Mitigation strategies: To mitigate these risks, the Team has reviewed selected geotechnical samples from the GDR exploration in the VDOT Fredericksburg Office. This review was performed by the Team's Geotechnical Engineer and focused on areas where cuts are planned within the Potomac Formation. The Team will develop a subsurface exploration and testing program that will include soil test borings, rock coring, in-situ testing, and laboratory testing to evaluate the on-site soils and mitigate these risks. Our laboratory testing program will include classification, consolidation, strength, and chemical testing. The results of this program will be combined with the provided GDR data and will be the basis of our final geotechnical engineering reports according to the VDOT MOI Chapter III, and Chapter VI.

Inherently, the geotechnical exploration is impacted by access to the site. Access can be limited due to weather, existing grading, overhead and underground utilities, and delays from private property owners. Although these items are outside of the Team's control, we have considered these items in our approach, and can utilize additional subsurface exploration methods including geophysical testing and hand augers if needed.

Section 4.5 Construction of the Project

WAGMAN | JMT

A DESIGN-BUILD TEAM

In this section, the Team addresses our approach to safely constructing and completing the project in a manner that minimizes impacts to the travelling public (local commuters, I-95 through traffic, and pedestrians), recreational facility users and adjacent properties / facilities. Our approach incorporates lessons we have learned while delivering numerous interstate and large river crossing projects, including the adjacent I-95 SB RRC Project. We commit our vast local resources (manpower, equipment, and facilities) to this project and will meet the Interim Milestone Date of **October 29, 2021**, provide a unique milestone by removing all temporary river impacts by February 14, 2023 and achieve Final Completion by **May 17, 2024** through partnership with VDOT and other stakeholders. Wagman's proposed final completion date improves on the contract completion date by over three months and provides the completed facility to the traveling public before Memorial Day, summer travel and summer recess. Several key aspects of our construction are highlighted below.

Benefits of Construction Sequence	• Outside of the two RFP commitments related to October 30th, 2020, the Team has sequenced our design and construction operations such that all other VDOT activities have at least 5 days of float and do not appear on the critical path. • By properly sequencing the design into multiple packages, schedule critical construction operations can begin earlier enabling final project completion by May 17, 2024. • Construction is sequenced to take advantage of the completion and opening of B609 in early 2023 such that the new NB CD roadway from south of the river (approx. STA 4515+00) across the existing bridge to the Route 17 Ramp D will be constructed out of traffic greatly improving safety. • We will maximize the amount of construction that can be performed in Phase S1 and Phase N1 by coordinating access with the I-95 SB RCC in 2021 to use existing access points before the new SB I-95 GP lanes are open to traffic. • The Team will procure additional temporary bridge components, which will enable the modified causeway to be shifted in an efficient manner providing a unique milestone with all temporary river impacts removed by February 14, 2023. • The revised alignment of B609 permits efficient and safe erection by maximizing the ability to deliver girders via our existing access road and improves safety by eliminating the need for temporary towers or excessive crane jibs. • Economized profile maximizes use of existing pavement to the extent possible with mill and overlay reducing cut. • Similar to that performed on the I-95 SB RRC, we will use a detailed sequence that provides linear SWM and ESC during all construction operations whereby temporary basins are used until contributing drainage areas can be constructed and stabilized with aggregate base.
Enhanced Transportation Management Plan	• Temporary Traffic Control design will provide safe, reliable and predictable traffic flow through the project while providing sufficient emergency pull off areas on outside shoulders. • Our marked ingress/egress areas with dedicated access for material deliveries and construction access will use the same enhanced construction ingress and egress access points with positive protection barrier offset to allow safe deceleration/acceleration as used on the I-95 SB RRC. • Construction of the NB I- 95 CD bridge over Route 17 will occur in single phase separated from traffic while eliminating the longitudinal construction joint.
	• Our TMP minimizes traffic shifts and reduces MOT durations and impacts to the traveling public.
	• MOT Inspections will be performed every working day and will be documented in the project files. Team members will be on-call 24 hours a day, seven days a week to assist with any traffic related issues within the project limits.

	• All new MOT patterns will be documented via video immediately after installation and verified for conformity and operational acceptance. All MOT will also be documented via video at the end of the work week in advance of weekend traffic.
	• Similar to our I-95 SB RRC, we will; 1) hold a separate Pardon Our Dust meeting for this project to review our formal incident management plan, discuss the planned TMP/MOT schemes and invite emergency service responders, school transportation, and regional transportation service providers, and 2) conduct safety specific training including fall retrieval and river rescue with the emergency service providers.

4.5.1 Sequence of Construction (SOC)

The Team has developed a sequence of construction that allows the Team to complete the base scope of work and Options 1, 2 and 3 by May 17, 2024 improving on the final completion date by over three months. The planned sequence of construction and related schedule shown in Section 4.6 is based on beginning work in areas as soon as possible after constraints are removed or required pre-work such as design is completed. The key items that influenced the planned sequence of construction for this project include:

- Identifying work activities that could begin early that are not constrained by;
  - completing geotechnical analysis,
  - obtaining all environmental permits,
  - acquiring right of way and relocating utilities.
- Working around environmental time of year restrictions (TOYR).
- Minimizing any disruption and safety concerns to the traveling public by minimizing number of major traffic shifts/detours required to maintain traffic.
- Maintaining a reasonable design schedule providing enough time with specific activities for comprehensive constructability QA/QC review; and all required agency reviews.
- Providing ample lead time to secure materials.
- Economized profile and ATC 1 improve earthwork balance for project.
- Early identification of soil conditions on-site to determine appropriate replacement or remediation and accommodate settlement periods
- Coordination with adjacent construction projects including I-95 SB RRC and FredEx.

The Team will construct this project in three major construction segments and work areas that can generally be built independently from each other and have separate maintenance of traffic (MOT) phases. This allows work in each segment along the 7-mile long corridor to occur concurrently. The three major segments are:

Area 1 - South Segment: South of the Rappahannock River

Area 2 - River Segment: Rappahannock River Bridge and Associated Access

Area 3 - North Segment: North of the Rappahannock River including Route 17 Interchange and Options 1, 2 & 3

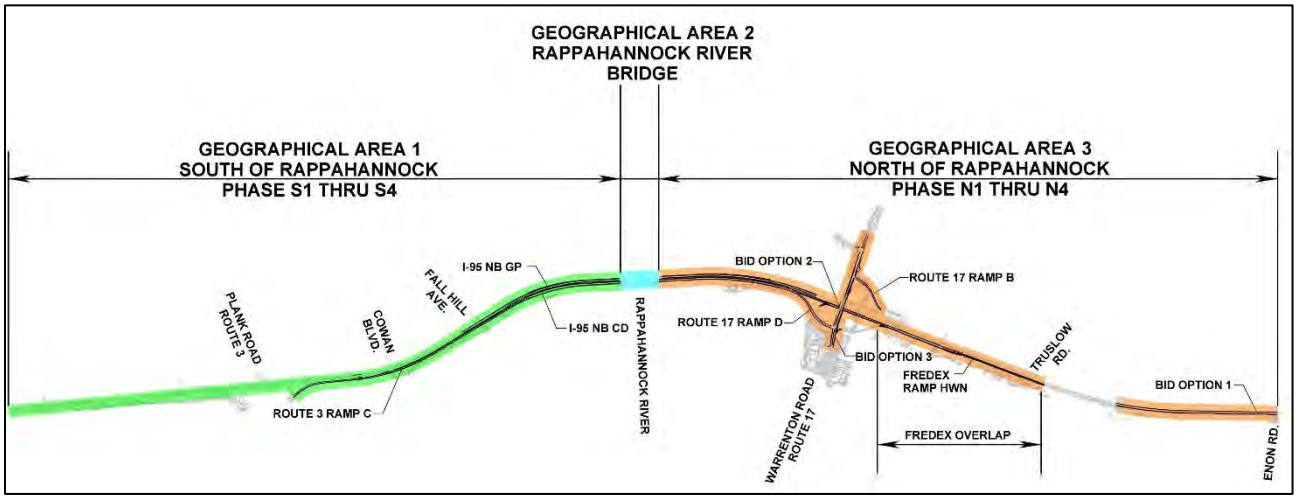


Figure 4.5.1.1 *Three Major Construction Segments for the Project*

The Sequence of Construction (SOC) and MOT phasing for each of these three major construction segments are summarized in Figure 4.5.1.1 and shown graphically in *Volume II*. The table and the graphics show how each segment is broken down into distinct construction phases based on the key items determining sequencing listed above. The construction phases correlate to traffic shifts required to complete the improvements. Key construction activities as well as major MOT features are listed for each distinct construction phase.

South Segment (South of Rappahannock River): As shown in **Figure 4.5.1.1**, the South Segment will be constructed in four distinct phases labeled S1 through S4.

Phase S1 – NB GP Lanes: Phase S1 includes work on the proposed NB GP Lanes which are within the existing I-95 median. The earthwork in this area requires imported material for a large fill. There are no jurisdictional wetlands or right of way acquisitions so mass grading operations can begin early in the schedule. The Team will prepare an Early Works Package (E&S, SWM, mass grading, MOT) of design plans and Transportation Management Plan (TMP) to allow construction to begin in the last quarter of the 2020 construction season. I-95 NB traffic will be shifted towards the right shoulder and temporary concrete barrier will be installed along the left shoulder to protect the work zone. Work area ingress/egress zones will be strategically located with acceleration and deceleration lanes so that construction traffic entering and exiting the work zone will not impact traffic. Through coordination with I-95 SB RRC we can start work in this area early in the schedule and allow the Team to maximize use of the new SB I-95 GP roadway for access before it is opened to traffic, thereby, greatly improve safety for Wagman, VDOT, and the public, and help minimize disruptions to traffic.

Phase S1 – Route 3 Ramp C: Phase S1 also includes work on Route 3 Ramp C, to the right of existing I-95 from Route 3 to Fall Hill Ave. Work in this area is generally out of traffic. This phase includes two distinct areas that can be started at different times depending on right of way acquisition, environmental permit approval, utility relocations and plan approvals. The area south of Cowan Blvd. is being widened and requires right of way. Work in this area will be scheduled to allow time for the right of way process. The area between Cowan Blvd and Fall Hill Avenue is being widened towards an existing noise barrier. Portions of this area will require a retaining wall so that new construction does not undermine or negatively affect the existing noise wall. Construction of the retaining wall will require Final Approved for Construction Plans. Therefore, this work will be scheduled to start as soon as approved construction plans are received.

Phase S2 – NB GP Lanes: Work along the NB GP lanes includes construction of Noise Barrier C located south of Route 3. This work will require shifting NB GP traffic towards the left shoulder and installation of temporary concrete barrier on the right shoulder. Additional right of way is required for this work so activities will be scheduled to allow adequate time for the acquisition process. This traffic shift is independent of work in other areas South of the Rappahannock.

Phase S2 – Route 3 Ramp C Tie-In: Phase S2 includes widening and tie-in work where Route 3 Ramp C merges with the NB CD Lanes (existing NB I-95). This will require shifting NB I-95 traffic towards the left shoulder. All work in this phase will be protected by concrete barrier. The area north of Fall Hill Avenue includes extension of an existing noise barrier which requires additional right of way. Work in this area will be scheduled to allow time for the right of way process.

Phase S3 – GP Lanes Tie-In: Phase S3 includes milling and build-up for the tie-in work on the existing NB I-95 lanes to the proposed NB GP lanes. Lane closures and traffic control requires for this tie-in work will be closely coordinated with VDOT to minimize disruptions to traffic. NB traffic will be shifted to the new GP roadway once the tie-ins are complete. Phase S3 will occur after the new NB Rappahannock bridge is constructed and median work north of the river is completed (Phase N1).

Phase S4 – Final Tie-Ins: Phase S4 includes the tie-in work required to open the new Route 3 Ramp C as well as the slip ramp to the NB CD Lanes. Final mill, overlay, pavement markings, and bioretention filters will complete this segment. At the end of this phase, all traffic will be located in its final configuration.

River Segment (Rappahannock River Bridge and Associated Access): Construction of the NB Bridge over the Rappahannock River is one of the more challenging aspects of the project due to the constrained work space. Based on our sequencing, construction of the bridge is on the schedule's critical path. Through close coordination with SB construction and procurement of additional temporary bridge elements, we will

start NB bridge construction early in the project. Completing the bridge early allows us to improve the final completion date.

Construction access will be maintained on the Quarry Access Road which will minimize environmental and recreational disturbance to the river bank trail system. Wagman currently has a license agreement with the City of Fredericksburg to use and maintain this road through May 11, 2022. We held a coordination meeting with the City on February 10, 2020, to discussion the cost and conditions they require in order to extend this license upon award of the I-95 NB RRC project. This will allow the Team unimpeded and uninterrupted access to the NB bridge from NTP through construction completion, which mitigates risk due to environmental time of year restrictions and helps deliver the project earlier.

The two proposed river piers will be accessed by a causeway/temporary bridge concept as detailed on Pages 88-90 in *Volume II Conceptual Plans*. Wagman will modify the existing SB causeway so that it can service both the NB bridge and the remainder of the SB construction. We have designed a modified causeway that can be relocated in a manner that will not disrupt SB construction while allowing NB construction to begin before TOYR start in February 2021. Wagman will provide additional workbridge abutments that can be installed prior to taking the existing workbridges out of service. Once the new workbridge abutments are installed, the superstructure can be quickly picked and set so that SB construction work is not impeded. The NB causeway has also been designed so that significant portions of the existing causeway can be left in place and not have to be relocated. Our modified causeway design also has a smaller footprint than the existing I-95 SBRRC causeway. Wagman will begin relocating the SB causeway and installing cofferdams once a permit modification has been received in the fall of 2020. A detailed causeway installation sequence is shown in *Volume II Conceptual Plan.*

Geotechnical borings for the NB bridge foundations can be performed from the SB causeway early during scope validation. Permanent bridge construction will begin as soon as the final bridge plans are approved for construction. The North bank of the river will be accessed by additional causeway after coordination with stakeholders and approved by VDOT. During any and all bridging closures, portages will be in place, clearly marked and communicated to river users.

Once substructure is complete the superstructure will be erected and the bridge will be completed. The causeway/temporary bridges will be removed as the TOYR will allow and all approved environmental conditions are met. **Opening the NB bridge to traffic early in the project allows the Team to construct large areas of the NB CD Road out of traffic, in a single phase.**

North Segment (I-95 North of the Rappahannock River): As shown in **Figure 4.5.1.1**, Geographical Area 3 will be constructed in four distinct phases labeled N1 through N4. This area includes all work north of the Rappahannock River including the Route 17 Interchange improvements as well as Options 1, 2 and 3.

Phase N1 – GP Lanes South of Route 17: Phase N1 includes work on the proposed NB GP Lanes which are in the existing I-95 median. There are no jurisdictional wetlands or right of way acquisitions in this area so construction activities can begin in the last quarter half of the 2020 construction season as soon as an early works package and TMP is approved. NB I-95 traffic will be shifted towards the right shoulder and temporary concrete barrier will be installed on the left shoulder. Work area ingress/egress zones will be strategically located with acceleration and deceleration lanes so that construction traffic entering and exiting the work zone will not impact traffic. Erosion and sediment controls will be immediately installed per the approved early work package plans.

Phase N1 – CD Road & FredEx Ramp: North of Route 17, Phase N1 also includes new construction to the right of existing I-95 for the proposed NB CD Lanes, and FredEx Ramp. Traffic on NB I-95, as well as the

existing NB CD Ramp, will be shifted towards the left shoulder and temporary concrete barrier will be installed on the right shoulder. The widening activities on the NB CD Lanes and FredEx Ramp require additional right of way which VDOT will acquire by October 30, 2020. Work in those areas will be scheduled to begin as soon as right of way is acquired in order to meet the Interim Milestone date.

Phase N2 – Route 17 Interchange: Phase N2 will include Ramp B and D construction at the Route 17 Interchange. The outside widening at Ramp B and associated tie-in work on Route 17 will occur. Existing ramp B traffic will stay in their shifted alignment from the SB RRC and continue to utilize the temporary traffic signal while outside construction occurs.

Ramp D construction will occur in two steps. First, the outside widening will be constructed. Existing ramp traffic will be shifted to towards the left shoulder and temporary concrete barrier installed along the right shoulder. This widening work requires new right of way to be acquired so work activities will be scheduled to allow time for this process to occur. Outside widening on Route 17 east of Ramps C&D will also be performed in this phase. The inside improvements on Ramp D will then be constructed which will require shifting the ramp traffic towards the right onto new pavement that was constructed in the previous step. Tie-in work along Route 17 at Ramps C&D will occur in this phase. At the end of this phase, Ramp D will be able to accept all traffic from I-95 NB destined for Route 17. This will allow Loop C to be taken out of service. Ramp C will be temporarily modified to accept traffic from Route 17 EB using a temporary traffic signal. This will allow Loop D to be temporarily taken out of service.

Phase N2 – North of Route 17: North of Route 17, traffic on the NB CD Lanes and Ramp C will be shifted towards the right onto new pavement that was constructed in Phase N1. This will allow the final improvements along the left shoulder to be constructed. Widening for the Centreport Auxiliary Lane (Option 1) will also occur during this phase.

Phase N3 – Route 17 Interchange: All traffic destined for Route 17 will utilize the newly constructed Ramp D. This will allow improvements to the NB CD Lanes, from Ramp D to Ramp C, including the new bridge over Route 17 (Option 2), to be performed outside of traffic in a single phase. This is a major safety improvement and eliminates the longitudinal construction joint in the new bridge. The sidewalk along Rte. 17 (Option 3) will be constructed after the bridge is complete.

Phase N3 also includes the inside work along Ramp B. Traffic will be shifted towards the right onto new pavement that was constructed in the previous phase.

Phase N4 – GP Lanes South of Route 17: The main component of Phase N4 involves shifting NB GP traffic to the new bridge and alignment. This work will be coordinated with tie-in work at the south end of the bridge. The tie-in from the new GP construction will be made by mill/overlay and buildup. A temporary connection to Ramp D will be installed for access to Route 17. After the traffic switch has been made, the remaining improvements to the NB CD Lanes from the river to Ramp D will be able to be constructed outside of traffic in a single phase.

Phase N4 – Final Tie-Ins: Phase N4 includes final mill, overlay, pavement markings, and bioretention facilities. At the end of this phase, all traffic will be located in its final configuration. With the completion of Phases S4 and N4, the project will be completed. The Team will beat the August 30, 2024 final completion date by completing the project on May 17, 2024. Delivering the final project completion over three months early allows the traveling public full access to the completed project prior to the close of local schools, summer vacation season and in advance of the holiday travel for Memorial Day Weekend.

Public Safety and Mobility

The Team's top priority on the project is safety of our employees, subcontractors, and the traveling public. We have a proven record of safely delivering multiphase interstate projects as evidenced by recent national and regional industry safety awards from ARTBA, VTCA, and AGC-MD. In 2019, Wagman was recognized by VTCA as the winner of the Contractor Safety Award in the 100,000 to 250,000 manhours category. In addition to OSHA 30, VDOT ESCC, and VDOT Intermediate Traffic Control our Project Environmental Health & Safety Manager, Dawn Pattison recently obtained the ARTBA Safety Certification for Transportation Project Professionals. Ms. Pattison will oversee the projects safety program from development of the Environmental Health and Safety Plan (EHSP) throughout training, physical construction and project acceptance.

Safety for the traveling public will be assured by development of a detailed Traffic Control Plan (TCP). This plan will minimize traffic shifts and lane closures, maintain or exceed minimum lane widths, consider line of site when planning for ingress to and egress from construction work areas, and avoid reductions in speed limits. Temporary concrete barrier wall or guardrail will be used to protect long-term work areas. We will utilize a certified, experienced traffic control supervisor and crew dedicated to install, maintain and remove the temporary traffic control devices. We will conduct regular drive-through video inspections of the project and review for compliance with the approved TCP.

MOT Commitment Example From Adjacent I-95 SB RRC Project:

In order to replace the NB I-95 bridge over Route 17, interstate traffic with ADT over 100,000 had to be diverted to the newly constructed adjacent bridge. Through close cooperation and coordination with VDOT, Wagman was able to complete the shift outside of workweek peak traffic flows. Wagman worked continuously around the clock and placed more than 2,700 tons of asphalt in order to successfully and safely execute this shift.

The Team appreciates the criticality of keeping **vehicular traffic moving safely** while making the necessary infrastructure improvements; to accomplish this, we plan to perform the majority of our construction behind barrier. This also enables us to perform substantive portions of the work during the daytime. Our construction team has already worked closely with our design team in locating entrances to the work zone and will continue to perform detailed constructability reviews of the TMP and MOT plans, ensuring that our plans provide safe and effective advance warning and transit through the work zone. Additionally, our plan will provide the following; on-call towing service, emergency pull off/refuge areas (if required), access through all work zones for emergency responders, pre-approved messaging for a variety of incidents (coordinated with VDOT's corridor incident management plan), and an emergency contingency plan (notification and response matrix coordinated with VA511 and preapproved detour routes with staged equipment and materials.)

The Team supports the traveling public by making it one of our priorities to be cognizant of the overall traveler mobility limitations that may be present due to the on-going construction activities of both adjacent and regional projects. We understand the requirements of the RFP, particularly Part 2 Section 2.10. We are conscious of other construction projects and the traffic ramifications they may pose; and will work with VDOT to minimize impediments to the travelling public and maintain a safe work zone throughout the I-95 corridor. We will accomplish this through coordination with other contractors and VDOT, as we have demonstrated on the I-95 SB RRC project. The Team has personnel trained and familiar with the use of VDOT LCAMS.

The **mobility and safety of recreational/pedestrian users** of the Rappahannock River and adjacent trails is also a priority for the Team. The Team maintains an outstanding relationship with the river and trail users in the area. The Team has met with user groups such as Friends of the Rappahannock to fully understand both river and trail users' interests and concerns. We have visited and used these river and trail facilities ourselves and are particularly engaged to make sure that these facilities are maintained and possibly improved. We have designed a causeway/temporary bridge relocation scheme that maintains construction access and minimizes interruption and impacts to both river and trail users. Our plan incorporates existing trail detours and river portages while keeping users safe, and all recreational facilities available for use at all times.

Maintaining Traffic Through all Phases of Construction

One of the key considerations when developing the COS and MOT phasing for the project was to minimize any disruption and safety concerns to the traveling public by minimizing the major traffic shifts/detours required to maintain traffic. **Table 4.5.1.2** summarizes the traffic shifts required for each traffic movement within the project area. Each area will have a maximum of three traffic shifts. All of the listed traffic shifts

are considered minor except for the final switch of NB GP traffic to the new alignment after B609 is constructed. As shown on graphics in *Volume II*, our design requires only one major traffic shift.

Wagman will draw on their experience with major traffic shifts on high-volume roadways to successfully plan and execute this operation. We will closely coordinate with VDOT and implement measures such as temporary pavement and extended work hours to minimize the disruption to traffic.

The Team has worked together to identify all critical construction activities, including access points and staging requirements, and we have developed a plan that accommodates these activities with minimal impact to the traveling public. For example, we will provide detailed plans including acceleration/deceleration lanes, temporary pavement, temporary barrier walls and additional signage to safely guide construction equipment and material deliveries in and out of the work zone areas. We will analyze and construct temporary drainage during all construction phases to ensure that the travel lanes are free of water ponding during storm events. Significant advantages of our MOT scheme are that it provides separation between opposing traffic at the Route 17 Interchange, minimizes the number of construction phases, constructs large portions of work outside of traffic, and requires only one major mainline traffic shift.

Table 4.5.1.2: ***Traffic Shifts for Primary Traffic Movements***

Major Traffic Movement	Number of Shifts	Shift 1	Shift 2	Shift 3
NB I-95 Through Traffic	3	Phase S1: Shift traffic to the left from Rte. 3 to Fall Hill. Phase S1: Shift traffic to the right from Fall Hill to the river Phase N1: Shift traffic to the right from the river to Rte. 17.	Phase S2: Shift traffic to the left from Fall Hill to the river. Phase N2: Shift traffic to the left for NB CD Lanes tie-in and Centreport Auxiliary Lane area.	Phase S3: Shift traffic to new NB GP lanes and bridge over Rappahannock. Phase N3: Shift traffic to final alignment at NB CD Lanes tie-in and Centreport Auxiliary Lane area. Phase N4: Shift traffic to new NB GP lanes and bridge over Rappahannock.
Route 3 Ramp C Traffic	2	Phase S1: Shift traffic to the left.	Phase S4: Shift traffic to new Ramp C construction.	
NB I-95 CD Lanes	3	Phase N1: Shift traffic to the left from Ramp C to I-95 tie-in. Phase N3: Divert traffic to Ramp D for NB CD bridge reconstruction.	Phase N2: Shift traffic to the right to newly constructed FredEx overlap area. Phase N4: Shift traffic to final alignment at Route 17 interchange.	Phase N3: Shift to final alignment.
Route 17 Ramp B	1	Phase N3: Shift traffic to right to newly constructed areas.		
Route 17 Ramp C	1	Phase N2: Shift traffic to the right.	Phase N4: Shift traffic to final alignment.	
Route 17 Ramp D	3	Phase N2 Stage 1: Shift traffic to the left.	Phase N2 Stage 2: Shift traffic to right to newly constructed widening.	Phase N3: Shift to final alignment.
SB I-95 Through Traffic	2	Phase S1: Shift traffic to the right from Fall Hill to the river.	Phase S3: Shift traffic to final alignment.	

Geotechnical Constraints

The Team will utilize the extensive resources and experience of our geotechnical division to self-perform the geotechnical construction activities for this project. Wagman can perform permanent foundations such as drilled shafts, micro-piles, or auger cast piles in addition to conventional driven piles. The Team's experienced geotechnical engineers and construction specialists are familiar with the challenges presented by this project including working in close proximity to high traffic volumes or environmentally sensitive locations. We also understand the diverse geotechnical constraints whether it is acid-sulfate soils, rock foundations, settlement sensitive fills or poor subsurface soils. Our ability to self-perform various types of foundations, support of excavation, retaining walls (including top-down walls and tie-back walls) and ground improvements enables us to control cost and maintain schedule. Wagman's geotechnical and construction engineers are engaged during pre-bid, design development and for consultation and over the shoulder reviews during design execution.

Wagman self-performs all non-disruptive foundations types (such as micro-pile pictured here on Route 7) controlling cost, schedule and reducing work zone requirements.

One of the most significant geotechnical constraints on the project is obtaining confirmatory geotechnical borings for all piers in the Rappahannock River. Our team intends to obtain these borings early in the project during the scope validation period. **However, if construction of the I-95 SB RRC project or river conditions do not allow timely access to the proposed pier locations, the Team agrees to exempt differing subsurface conditions at piers two and three in the Rappahannock River from any scope validation considerations.**

The Team has identified unsuitable soils as a potential schedule constraint. Our mitigation plan begins with a robust geotechnical investigation to identify as many areas as possible and provide engineering solutions that include removal and replacement, drying, soil mixing or soil amendments.

Environmental and Noise Impacts

The Team's extensive constructability reviews during the design phase will promote environmental cognizance and integrate our **best practice** construction techniques into the design. This has already resulted in improvements during the development of this proposal with associated noise reduction and mitigation. Our approved ATC incorporates a noise berm in lieu of Noise Barrier C. This berm is more efficient than a noise wall and has less maintenance concerns, enhances aesthetics, reduces ROW impacts, and better balances the projects earthwork. Noise barrier FH will be constructed early in the project. Based on lessons learned on bridge demolition in densely populated areas, we will maximize the use of specialty demolition means & methods (such as saw cutting/controlled lift out) in lieu of conventional breaking for B608 (Option 1). These and other engineered controls (including those related to dust and silica) will be incorporated during design development to further minimize environmental impacts.

The most significant environmental feature of the project is the Rappahannock River. The time of year restrictions for various endangered mussel and fish species is capable of controlling the project duration. We have designed a modified causeway/temporary bridges and causeway access that minimizes temporary impacts to the Rappahannock River ecosystem and recreational users. We also plan to conduct a mussel survey that we anticipate will show no presence of endangered mussel and allow for relaxation to the TOYR for mussels.

Our Early Works construction package avoids disturbance of construction in jurisdictional wetlands. This technique preserves schedule and minimizes the potential for permit delays to control the project. The Team has a proven history of coordinating construction environmental practices and environmental performance with VDOT statewide on previous projects, in particular with the key contacts for this project, as demonstrated on the adjacent I-95 SB RRC Project.

The Team has developed and refined numerous best practices related to SWM/ESC/P2 in our delivery of VDOT DB projects in multiple districts. These practices have resulted in excellent performance on our

projects as validated by internal and external (VDOT MS4 Coordinator, DEQ, and JMT) audits and inspections and the following practices will be implemented on this project:

- Wagman will designate a primary ESC Manager from the construction team as well as two alternates all of whom will possess both RLD and ESCC Certifications.
- Additional Wagman Team Members (SWM/ESC Design Lead, EIC, Safety Manager, Sr. QA Inspector, and Sr. QC Inspector) will assist the ESC Manager by rotating their participation in the Construction Runoff Control Inspections (CRCI).
- CRCI will occur twice a week at a minimum and after every measurable storm event.
- Stabilization Equipment (Hydro-seeder and mulch truck) will be stationed at project site with sufficient inventory of temporary materials so daily stabilization can occur as required.
- Temporary concrete washout facilities will be constructed and regularly maintained throughout the site as designated by the EHSP.
- Temporary fuel will be stored outside of environmentally sensitive areas and all fuel storage tanks will utilize dual containment systems in accordance with the EHSP.
- SWPPP will be updated and maintained with all proper official documentation.

Right-of-Way Impacts

The Team has developed an approach that reduces ROW impacts, specifically in those areas where VDOT has the ROW procurement responsibility. Right of Way Impacts remain an important project requirement. We have prioritized the ROW acquisitions to prompt those required to advance construction activities in accordance with our phasing of the project. We have minimized the need for construction easements by conducting most of our construction work from the existing VDOT property.

Staging and Storage Areas

The Team plans to build upon the successful staging plan used on the I-95 SB RRC project. All staging areas both offsite and onsite will be detailed in the project's SWPPP and properly permitted. Material staging for roadway construction will occur predominantly in station between construction entrances and the active work areas. Material staging for B609 substructure construction will be closely coordinated with the I-95 SB RRC project and occur predominantly in one of the three staging areas constructed along quarry road. Material staging for B608 will occur in station along the closed CD lanes and open areas of Loops C & D. The Team may also use the area at Route 3 Loop B, which is currently being used as part of the I-95 SB RRC project. Shared use of this area has already been coordinated. For offsite staging, the Team plans to utilize an open lot adjacent to our I-95 SB RRC Project office site as our office compound.

We will stage materials and schedule deliveries during non-peak hours whenever possible to minimize disruptions to the traveling public. The Team will separate construction from the traveling public and will provide proper and well signed ingress, egress, and refuge areas. These staging and storage areas are strategically located to minimize construction traffic and deliveries disrupting traffic on I-95.

Incident Management

The Team's approach to incident management is detailed below in the Incident Management Plan in Section 4.5.2.3 as part of the Transportation Management Plan.

Government Approvals

The complex nature of this project will require approvals from agencies outside of VDOT's control. The Team has experience with all the agencies involved. The construction segments have been developed as a direct result of the advanced discussions and coordination we have performed with agencies such as the City of Fredericksburg, Spotsylvania County and Stafford County, bearing in mind the need to expedite approvals and provide design packages that are acceptable to VDOT.

The Team's advanced engagement with the Department of Game & Inland Fisheries, Department of Environmental Quality and the Corps of Engineers has fostered the development of confidence in a plan of execution that reduces the environmental impacts associated with the Rappahannock River, effectively removing the Rappahannock River Time of Year Restrictions from the project's critical path. Additional engagement with these permitting agencies has provided the Team with an approach to begin work in non-jurisdictional areas (Early Works Package) to maximize the opportunity to begin work early and complete the project by May 17, 2024.

Mitigation of Delays

The Team's long history of delivering projects on time can be attributed to effectively partnering with VDOT. This experience has compelled frequent, open and honest communication between the Team and VDOT at all levels to complete DB projects on schedule. Our team can self-perform all critical construction elements (roadway, drainage, structures, utilities, geotechnical, noise barrier) and includes significant local manpower, equipment, and material resources. These resources are available for reassignment to this project (24/7) to supplement the project team and accelerate the project should the project be impacted by issues beyond the control of the Team or VDOT. We utilize multiple tools (baseline project schedule, three-week look ahead schedules, weekly schedule and quality coordination meetings, and day-to-day coordination meetings) to anticipate potential delays and effectively communicate these with appropriate mitigation strategies to VDOT.

The Team has developed a very detailed CPM schedule that has integrated the design and construction activities (see proposal schedule in Section 4.6). Our schedule is the result of close coordination between the design and construction team; is based on available design and construction resources; establishes specific activities for quality control/constructability of all deliverables; includes review times of all submittals, including shop drawings; includes time for all design, permitting, ROW acquisitions, utility relocations, construction and material fabrication. Our approach to scheduling the project to mitigate delays includes the following:

- Minimize the duration of impacts to the traveling public
- Place traffic on permanent pavement as early as possible
- Avoid utility conflicts
- Avoid Right of Way acquisition delays
- Clearly identify the project's critical path
- Reduce contract duration

The project schedule will be updated monthly during the duration of the project and will include design, permitting, submittal/shop drawing reviews, procurement of materials, subcontractors and construction activities. Quality Assurance (QA) and Quality Control (QC) hold points and witness points will be clearly defined. The schedule will be continuously monitored and updated to ensure that released-for-construction (RFC) plans are available when required, that resources are adequate and that materials are available when needed. The schedule is a dynamic tool and provides a basis for identifying opportunities for improvements to project completion through resequencing, adjusting resources or altering the means and methods for performance of the work. Updating the schedule monthly and jointly reviewing with VDOT at each progress meeting will allow us to identify any delay early and develop a recovery schedule as needed to complete the project by May 17, 2024.

The project schedule along with 3 week look ahead schedules will facilitate scheduling QA/QC testing and inspection resources and manpower planning. Scheduled witness and hold points in the will clearly highlight these critical quality activities to all parties.

In addition to the Team's self-performing construction capabilities, we are partnering with subcontractors, vendors and suppliers that understand our approach to safety and compliment the project team.

CES, LLC (in particular Matt McLaughlin) providing Utility Coordination and Management Services brings years of proven experience in managing utility avoidance and relocations. Our ***prebid, preliminary UFI meeting*** held on November 6, 2019 is a prime example of the positive working relationships with utility owners. One of the most common causes of construction delays are utility relocation issues. JMT will use the 3D model generated from the OpenRoads design files while coordinating with Matt and the utility agencies to ensure that the means and methods required to relocate utilities will be compatible with the proposed construction plan. As an integral part of the Team, Matt's experience and input into project planning and scheduling has guided utility avoidance concepts in both design development and construction scheduling. Matt will be engaged in the project throughout design and construction maximizing the probability of anticipating and being able to mitigate utility delays and expedite utility work to increase the opportunity to improve upon stated completion dates.

The Team has completed a full risk mitigation workshop identifying the critical risks on the project and have discussed and implemented mitigation strategies throughout our response to the RFP. We have mitigated the project's risks identified to meet schedule requirements and achieve all milestones.

4.5.2 Transportation Management Plan (TMP)

The Team is dedicated to minimizing impacts to the public and all stakeholders during all phases of construction. Our TMP and MOT Plans have been developed thus far with an emphasis on maximizing safety for the traveling public and construction personnel while focusing on minimizing travel delays throughout all stages of construction. To accomplish these safety and public mobility goals, we have committed to mitigation and communication strategies that exceed the requirements of the RFP. Some of these strategies are detailed on the following pages.

To facilitate construction a Type C TMP will be developed per the *VDOT IIM-LD-241.7 (IIM-TE-351.5)* and designed in accordance with the methodology provided in the *Virginia Work Area Protection Manual, Revised July 2019*; the *Manual on Uniform Traffic Control Devices, Year 2009 Edition;* and the *Virginia Supplement to the Manual on Uniform Traffic Control Devices, Year 2011 Edition/Revised September 2013*. The TMP will include a *Temporary Traffic Control Plan*, a *Public Communication Plan* and a *Transportation Operations Plan* (TOP) in order to reduce multi-modal traffic impacts, improve safety, and enhance coordination within and around the work zones. The proper planning of construction activities is critical in promoting worker and traveler safety as well as in preventing unreasonable travel delays and vehicular queues. Our personnel involved in the design and implementation of the work zones are experienced with this corridor, including I-95 SB RRC, and are certified with VDOT Advanced and Intermediate Work Zone Training.

4.5.2.1 Temporary Traffic Control Plan (Maintenance of Traffic)

The Team has developed a MOT plan that consists of four (N1-N4) construction phases north of the Rappahannock River and four construction phases south (S1-S4) of the Rappahannock River (see MOT plan sheets and Table 4.5.1-1) with only one major traffic shift. Our plan will minimize disruptions to the traveling public and place traffic on permanent roadway early while minimizing temporary lane closures.

During construction of the project, the Team will maintain safe access to and from the ramps at the Route 17 Interchange and the Route 3 Interchange, as well as safe ingress and egress along I-95 NB and SB for construction of the new I-95 GP lanes in the median. Methods to be used to minimize impacts to the traveling public include the following:

- Provide clear and safe access for traffic through the project
- Provide sufficient emergency pull off areas on the shoulders
- Minimizing temporary lane closures as allowed by RFP
- Place traffic on permanent pavement as early as possible
- Coordinate lane closures and traffic shifts with adjacent construction projects
- Complete the project ahead of the schedule required by the RFP
- Provide detailed work plans to all construction crews, to include subcontractors, for every step and construction phase

The Team will continue MOT best-practices that are currently being implemented on the I-95 SB RRC project. MOT inspections will occur every working day and will be documented in the project files. Team members will be on-call 24 hours a day, seven days a week to assist with any traffic-related issues along the corridor. All new MOT patterns will be videoed immediately after installation and verified for conformity and operational acceptance; and all MOT will be videoed at the end of the work week for documentation.

The Team's recommended traffic management strategy for this high-profile project centers around minimizing traffic restrictions on I-95, Route 17 and Route 3, providing improved traffic flow at ramps/loops, and reducing overall construction time. Lane closures will only be implemented during off-peak hours as designated in the RFP Part 2, Section 2.10.3 Lane and Road Closure Restrictions. Our TMP will describe and explain the assessment of the construction impacts, an assessment of the shoulder(s)/lane closure

strategy, and the required collaboration needed to ensure this strategy is successful and acceptable to the public. It will describe the proposed shoulder(s)/lane closures and estimated impacts, special signing and the Temporary Traffic Control layout, transportation operations strategies, incident management, and public communication strategies.

Proposed Lane or Ramp Closures

Temporary complete closure of the Route 17 NB or SB lanes during week days (i.e. Monday thru Friday) night-time period will be necessary for bridge girder erection or bridge demolition on the bridges over Route 17, but will be limited to 30 minutes or less per the RFP requirements. These temporary closures are necessary to ensure the traveling public's safety. Closures will be planned months in advance and will be communicated to the public and emergency responders well in advance.

After Route 17 Ramp D construction is complete, Loop C will be permanently closed. Additionally, the Team is proposing to incorporate a **temporary traffic signal at the Route 17** interchange to allow the temporary closure of the Route 17 Loop D ramp. Closure of these two loops will facilitate the construction of the I-95 NB CD bridge over Route 17 in a single phase which eliminates the longitudinal construction joint.

Temporary Detours

The Team has designed our construction access to minimize impacts to trail or river users. Construction will be staged in order to maintain safe passage through the work zone. There are no closures anticipated for the trail system except for short-term flagging operations. Any necessary river closures will be closely coordinated in advance with VDOT and river users. The Team will maintain the existing signage for trail and river users as well as the portages that are already in place. Detour routes will be addressed in a contingency plan should any unforeseen conditions present themselves within the work zone. Wagman will continue to foster the close relationship they have established with key river stakeholders such as the Friends of the Rappahannock and VA Outfitters.

Time of Day Restrictions

The Team will adhere to the RFP requirements for the time of day restrictions for allowable lane and short-term shoulder closure times. This will be included in the Public Communication and Incident Management Plan along with updates to VDOT's Regional Traffic Operations Center.

Flagging Operations

Quarry Road, the adjacent trail, and Wagman Team constructed River Portages at each end of the causeway are the only locations on the project that the Team anticipates the use of flagging operations. Pedestrians, bicyclists or river portages crossing the causeway access road or ends of the causeway will be protected from construction operation traffic at any time construction in that area needs to cross a designated trail. Flagmen will be used when any construction traffic or adjacent/overhead work could pose a potential safety hazard on the project and to the traveling public.

Minimum Lane Widths during Construction

The Team plans to conform to the RFP and will strive to provide 12-foot wide travel lanes where possible with maintaining a minimum of 11-foot travel lanes on I-95 and 10-foot on Route 17. Two foot minimum offset to the barrier will be maintained throughout the project.

Work Zone Speed Reductions

The Team does not expect to request any work zone speed reductions. All temporary lane shifts and merges will be designed for the posted speed limit. All temporary geometry and shifts will meet the standards for the full posted speed limit.

Construction Entrances

The Team will maintain access to the existing I-95 median crossover locations during construction. The construction ingress and egress points are strategically placed within the project limits prioritizing safety and operations. These access points will include advance warning notification and acceleration/deceleration areas with positive protection barrier so that construction traffic has the least amount of impact to the traveling public. The access points are identified graphically on our MOT plans in *Volume II*:

Project Stakeholders

The Team has identified a wide range of stakeholders that may be impacted by the construction of the project's Base Scope and Option 1-3. These stakeholders have been grouped into three categories; 1) those whose property is physically impacted by construction activities; 2) those whose operations may be affected by the construction and 3) those impacted by temporary traffic control. Our communication/mitigation strategies will be proactive and not reactive exceeding the project's requirements.

Stakeholders whose Property is Physically Impacted by Construction		
Stakeholder	**Potential Impact(s)**	**Communication/Mitigation Measures**
Property Owners	Property is being acquired Construction Noise	Property owner notification letters will be sent prior to entering any properties for data collection efforts Team ROW agents will follow VDOT Right of Way Manual of Instructions Property owners will be invited to Pardon our Dust Meetings Sound barrier construction moved up in schedule to be completed early in the project schedule
Utility Companies	Facilities are in direct conflict with proposed construction and require relocations or adjustments	Section 4.4.2 discusses the Team's approach to utility company coordination and relocation
Environmental Agencies (DEQ, USACE, National Park Service)	Construction impacts resources and lands protected by agencies	Section 4.4.1 discusses the Team's approach to coordination with environmental agencies and mitigation being provided
Stakeholders whose Operations are Impacted by Construction		
Stakeholder	**Potential Impact(s)**	**Mitigation Measures**
EMS, Police and Fire for City of Fredericksburg, Stafford County and Spotsylvania County and Area Hospitals	Quickest routes to facilities change based on approved TMP/MOT Closed shoulders or lane closures could impact maneuvering around congestion	Hold a separate Pardon Our Dust meeting for the project to discuss planned TMP/MOT schemes and invite emergency service providers, school transportation, and regional transportation service providers. Solicit concerns and address as necessary Hold additional Pardon Our Dust meetings prior to major traffic shifts
City of Fredericksburg, Stafford County, Spotsylvania County Schools, **FAMPO**	Bus Routes may be impacted by lane closures and increased congestion	See above
Regional Transit Organizations **Commuter Services** **VRE**	Bus Routes may be impacted by lane closures and increased congestion	See above
Virginia Tourism Corporation	Perception that the Virginia Welcome Center may be closed.	Access to the Virginia Welcome Center will be maintained at all times. Provide additional signage to let motorist know Welcome Center is open.
Friends of the Rappahannock and other recreational groups	Rappahannock River Bridge construction will reduce river width available for recreation activities.	Wagman has already reached out to the Friends of the Rappahannock, VA Outfitters, and the City of Fredericksburg Parks and Recreation. Frequent direct stakeholder outreach through one on one meetings.

	Trails parallel construction access road and pass through work zone at River.	Our design incorporates the current safe passage in place through the construction area.
Stakeholders whose Travel is Impacted by MOT Concepts		
Local Traffic Regional Traffic Interstate Traffic Trucking Industry Local Business Delivery	Diversions, lane closures, shoulder closures could increase delays and provide confusion for drivers.	Assist VDOT with information campaign supplying information and graphics for websites and sharing with local media. Hold Pardon Our Dust meetings prior to commencing construction and before major traffic shifts. Hold meetings with large employers in the area such as Intuit and GEICO. Send interested citizen's an electronic monthly newsletter with project updates. Maintain a log of comments, questions, and complaints along with resolutions.

Table 4.5.1.6: ***Summary of Stakeholders Potential Impacted by Construction of Project.***

The Sequence of Construction and MOT Phasing plan contained in *Volume II* provides detailed explanation of the Team's plan for maintaining traffic through all phases of construction. The TMP will address all users including pedestrians, bicyclists, transit vehicles and motorists. It will accommodate safe and efficient snow removal operations and ensure proper drainage during all phases of construction. Access to all businesses, residential communities and private entrances will be maintained.

4.5.2.2 Public Communications Plan / Public Outreach

The second component of the Team's Traffic Management Plan will include a Public Communication Plan. Comprehensive public outreach of reliable information is critical to the success of a project's TMP because of the negative effects work zones can have on traffic safety, mobility, accessibility and user satisfaction. The Team's public relations staff led by Elisabeth McCullum will develop a Public Communications Plan in conjunction with VDOT's Fredericksburg District Communication Manager Kelly Hannon and her office. The plan will detail the types of information, the frequency and to whom the information will be disseminated to throughout the duration of the construction.

Key components (as described above in previous sections) of the public communication plan will be:

- Virginia 511 Notifications
- Use of Virginia State Police
- Portable Changeable Message Signs
- Virginia Welcome Center
- Rappahannock River Waterway and Trail Users
- The increased use and availability of social media has opened new opportunities to engage the traveling public. The Team embraces the use of these technologies and is currently using them for work on the I-95 SB RRC project. Project brochures, newsletters, web pages, and media campaigns all may be used to communicate work zone information to the public, detailing alternative routes, travel times and delays, new traffic patterns and project schedule. New techniques, such as Twitter alerts, are being used to alert the trucking community about changes in traffic patterns. However, no postings will be made unless approved by VDOT in advance.

The Team members have extensive experience with NOVA Mega Projects as well as I-95 construction projects throughout the Mid-Atlantic states. As part of these projects, our team, in partnership with VDOT, has regularly coordinated with public entities, homeowner associations, individual homeowners, businesses, county governments, federal agencies, civic groups, historic properties, protected watersheds and various other groups during both design and construction. In particular, the Team members hosted extensive and numerous **Pardon our Dust** and other public meetings on behalf of VDOT. These have been well received by project communities and have served as a key to our success in keeping the public fully informed.

4.5.2.3 Incident Management/Transportation Operations Plan

The Team recognizes the need to respond quickly to random or unexpected events such as traffic accidents, severe weather or special events that may occur in surrounding communities throughout the construction work zones. We also understand the significant interest that VDOT places in minimizing impacts to the traveling public during these types of work zone incidents. Therefore, we will develop and implement an Incident Management Plan (IMP) before start of any construction activity that may impact both travel lanes and shoulders. The IMP will include:

- Stakeholder identification and notification tree
- Response goals and objectives
- Strategies to manage and clear work zones

The safety of the traveling public is our highest priority. We will coordinate our efforts with VDOT and all appropriate emergency and law enforcement agencies. Meeting with first responders on-site to educate them about the project and the project's access points is integral to our EHSP. The Team will hold a stakeholder meeting to brief everyone on the approved Incident Management Plan. We will also conduct training with first responders on project safety techniques such as fall retrieval systems and water rescue.

The Incident Management Plan will be coordinated with adjacent projects. The plan will be developed and approved by VDOT and be in full force prior to any field work that impacts travel lanes or shoulders, including but not limited to construction, geotechnical investigations and survey work. The incident plan will establish priorities, goals and key points of contact required to effectively respond to various incidents with the overall objective of reducing the time needed to reopen travel lanes and improve safety in the event of an incident. Responding effectively to incidents requires a planned and coordinated effort by many different agencies, from law enforcement and fire departments, to emergency medical personnel, towing companies, spill/hazard response teams, and VDOT maintenance crews. The plan will define how workers' priorities will be shifted to restoring normal traffic flow as soon as practical. The key elements of the plan will include the following:

- Contact lists for notifications communications protocols and 24/7 points of contacts for local emergency providers (fire, police, and EMS for Spotsylvania County, Stafford County and City of Fredericksburg); Stafford, Northern Virginia, and Richmond TOCs; Virginia State Police; Interstate Maintenance Contractor, and Virginia Tourism Corporation.
  - Preplanned messages for PCMS and ITS message boards
  - Preplanned access to work zones for local emergency providers
  - Predetermined detour routes for emergency road closures
- Clear plan outlining the process from start to finish
- Well-defined responsibilities and priorities for each worker
- Training of workers

By developing a comprehensive incident management plan, our team will ensure that the impact of a significant incident will be minimized. After any incident, The EIC and Construction Manager will work with VDOT to evaluate whether the project had any impact on the incident and whether any adjustments need to be made to the implemented MOT and/or the incident management plan. Any changes to either will be communicated to all affected stakeholders.

The Team Construction Commitment

The Team is absolutely committed to maintaining a safe workzone for both our workers and the traveling public. With safety as a core value, we have incorporated and will continue to identify enhancements that exceed the requirements of the RFP because it means a safer and healthier environment for everyone. Our enhancements include:

- Temporary signal at Route 17.
- Improved ingress/egress access with dedicated accel/decel lanes for construction traffic.
- Portage for river traffic.
- Causeway and river access coexists with river and trail users.

Our sequence of construction and maintenance of traffic have been integrated to minimize traffic shifts and impact durations to the traveling public while providing a safe and efficient project.

Section 4.6 Proposal Schedule

WAGMAN | JMT

A DESIGN-BUILD TEAM

The Wagman Team has provided a Proposal Schedule and Proposal Narrative demonstrating our understanding of the complexities and interrelationships of the technical elements of the Project. PDF copies of the Proposal Schedule and narrative as well as a back-up copy of the Proposal Schedule's source document have been provided on a CD-ROM.

4.6.1 Project Schedule

The Wagman Team has developed a Proposal Schedule (located in Volume II), which incorporates the internal plan reviews, VDOT plan reviews and approvals, environmental permitting and constraints, right of way acquisition, utility relocation, required submittals to include shop drawings, construction activities and QA/QC inspection and testing. RFP Section 2.3.1 provides Interim and Final Completion Milestones. Our Interim Milestone Date of **October 29, 2021** meets the RFP requirement and Final Completion Date of **May 17, 2024 exceeds** the RFP requirement of August 30, 2024 by over three months. **Additionally, as an added benefit to river users, we commit to a Unique Milestone to remove the causeway by February 14, 2023.** The Wagman Team will eliminate all temporary impacts to the river, including the removal of the causeway, well in advance of the contractual completion date. The Wagman Team will aggressively manage the project schedule to achieve the maximum early completion incentive for the Interim Milestone and will deliver Final Completion by **May 17, 2024**.

The Proposal Schedule depicts the Wagman Team's proposed overall sequence of work and duration for each work task and deliverables required to complete the Project. The schedule is organized using a hierarchical Work Breakdown Structure (WBS), divided into three major segments of the Project and further broken down into four phases both north and south of the Rappahannock River.

4.6.2 Project Schedule Narrative

In addition to the technical elements, the narrative also describes the Wagman Team's plan to accomplish the Work including, but not limited to, the overall sequencing, a description and explanation of the Critical Path, proposed means and methods, and other key elements upon which the Proposal Schedule is based.

Schedule Development

The Wagman Team has reviewed in detail the scope and schedule requirements outlined in the RFP and has developed a Proposal Schedule outlining our plan to successfully manage all phases of the I-95 NB RRC and build upon our existing partnerships with VDOT and other stakeholders to safely deliver the project in an expedited manner.

The Wagman Team is committed to providing
VDOT with a completed project by
May 17, 2024, over 3 months earlier
than required by the RFP.

Project Milestones

Table 4.6-1: *Project Milestones*

Notice of Intent to Award	**4/6/2020**
CTB Award	**5/20/2020**
Design-Build Contract Execution	**5/26/2020**
Notice to Proceed	**5/28/2020**
Start Construction - South of Rappahannock River	**11/2/2020**
Start Construction - North of Rappahannock River	**11/2/2020**
Start Construction - Rappahannock River Bridge B609	**12/16/2020**
Start Construction - (Early Work Package)	**10/19/2020**
Interim Milestone - October 29, 2021 (FredEx Overlap)	**10/29/2021**
Start Construction - Option 1 Auxiliary Lane Extension	**10/30/2021**
Start Construction - Option 2 Replacement CD Bridge B608	**10/18/2022**
Unique Milestone- February 14, 2023 (Removal of the Causeway)	**2/14/2023**
Start Construction - Option 3 Sidewalk Connection through I-95/Route 17 Interchange	**5/10/2023**
Final Completion - August 30, 2024	**5/17/2024**

Work Breakdown Structure (WBS)

The Team has organized the schedule into a hierarchical Work Breakdown Structure (WBS) to demonstrate the relationship and activity durations amongst the milestones, scope validation period, design, public involvement, environmental permitting, ROW acquisition, utility relocation, construction, and project management disciplines for the I-95 NB RRC. The following is a summary of our schedule organization followed by the complete WBS listing in *Table 4.6-2*.

Project Milestones: This section provides for quick review of project milestones and overall status.

QA/QC Plan: This section contains QA/QC Milestones.

Design: Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, internal reviews, VDOT plan reviews and approvals, other regulatory agency reviews.

Environmental: This section includes hazardous material plan development and inspections, threatened or endangered species surveys and relocations, permit development and acquisition, noise abatement and VDHR reviews.

Right-of-Way: This section includes all work necessary to obtain the ROW required by the Wagman Team's design including limited access modification, hold points, appraisals, reviews, negotiations and clearing of ROW. As we prepare our Baseline CPM we may further break down the project ROW into packages to facilitate prioritization and tracking of critical parcels.

Utilities: This section contains all Utility designations, coordination, design, relocation, and as-builts anticipated by the Wagman Team's design. As we develop our Baseline CPM we will further refine our utility relocation requirements to ensure and track priority relocations.

Public Involvement: This section includes the public outreach plan, updates and meetings. This section will be further refined as we develop and update the Baseline CPM during the course of the project.

Construction: Includes all components of roadway and bridge construction as well as MOT, construction access, noise barriers, and drainage. This section is further broken down to show the Wagman Team's logical progress of work.

Table 4.6-2: *Work Breakdown Structure*

WBS Code	WBS Name
C00105510DB106-1	I-95 Northbound Rappahannock River Crossing Technical Proposal
C00105510DB106-1.1	Project Milestones
C00105510DB106-1.2	QA/QC Plan
C00105510DB106-1.3	I-95 Design / Environmental / Right-of-Way / Utilities
C00105510DB106-1.3.1	Scope Validation Period
C00105510DB106-1.3.2	Existing Drainage Culverts
C00105510DB106-1.3.3	Design Phase
C00105510DB106-1.3.3.1	Design Exceptions & Waivers
C00105510DB106-1.3.3.1.1	Design Exceptions & Waivers - Option 1
C00105510DB106-1.3.3.2	Supplemental Mobile Scanning / Field Surveys
C00105510DB106-1.3.3.2.1	Mobile Scanning Surveys
C00105510DB106-1.3.3.2.2	Field Surveys
C00105510DB106-1.3.3.2.2.1	Field Surveys - Option 1
C00105510DB106-1.3.3.3	Geotechnical Engineering & Subsurface Investgations
C00105510DB106-1.3.3.3.1	Geotechnical Engineering & Subsurface Investigations - Option 1
C00105510DB106-1.3.3.4	Roadway Design
C00105510DB106-1.3.3.4.1	Develop Right-of-Way Plans
C00105510DB106-1.3.3.4.2	Early Work Package (EWP) Clearing / Grading / E&S / MOT & TMP
C00105510DB106-1.3.3.4.3	Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP
C00105510DB106-1.3.3.4.3.2	Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Overlap Area
C00105510DB106-1.3.3.4.3.1	Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Option 1
C00105510DB106-1.3.3.5	Bridge Design
C00105510DB106-1.3.3.5.3	Bridge B608 I-95 NB CD Lanes Over Route 17
C00105510DB106-1.3.3.5.4	Bridge B609 I-95 NB GP Lanes Over Rappahannock River
C00105510DB106-1.3.3.6	Retaining Walls
C00105510DB106-1.3.4	Environmental
C00105510DB106-1.3.4.1	Hazardous Materials
C00105510DB106-1.3.4.2	Threatened & Endangered Species
C00105510DB106-1.3.4.2.1	Bat Species & Mussel Inventory
C00105510DB106-1.3.4.3	Environmental Permits
C00105510DB106-1.3.4.3.1	Environmental Permit Applications
C00105510DB106-1.3.4.3.2	Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)
C00105510DB106-1.3.4.4	Noise Abatement
C00105510DB106-1.3.4.5	VDHR Plan Review
C00105510DB106-1.3.5	Right-of-Way
C00105510DB106-1.3.6	Utilities
C00105510DB106-1.3.6.1	Utility Delineation
C00105510DB106-1.3.6.2	Utility Coordination
C00105510DB106-1.3.6.3	Utility Design (By Others)
C00105510DB106-1.3.6.3.1	Utility Relocation Design
C00105510DB106-1.3.6.3.2	Utility P&E Development
C00105510DB106-1.3.6.3.3	No Conflict Utilities
C00105510DB106-1.3.6.3.3.1	Utilities with No Conflict
C00105510DB106-1.3.6.3.4	Utility Relocation Construction
C00105510DB106-1.4	Public Involvement
C00105510DB106-1.5	Construction
C00105510DB106-1.5.1	Construction Submittals
C00105510DB106-1.5.1.1	Noise Barrier
C00105510DB106-1.5.1.3	Retaining Walls
C00105510DB106-1.5.1.2	B609 Rappahannock River Bridge
C00105510DB106-1.5.1.4	Bridge B608 I-95 NB CD Lanes over Route 17
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WBS Code	WBS Name
C00105510DB106-1.5.2	Acquisitions
C00105510DB106-1.5.2.1	Noise Barrier Wall
C00105510DB106-1.5.2.3	Retaining Walls
C00105510DB106-1.5.2.2	B609 Rappahannock River Bridge
C00105510DB106-1.5.2.4	Bridge B608 I-95 NB CD Lanes over Route 17
C00105510DB106-1.5.3	Mobilization
C00105510DB106-1.5.4	Major Traffic Shifts
C00105510DB106-1.5.8	SWM
C00105510DB106-1.5.5	Improvements South of Rappahannock River Bridge (Geographical Area 1)
C00105510DB106-1.5.5.3	I-95 NB GP (Phase S1)
C00105510DB106-1.5.5.1	South of Route 3 - Noise Barrier C (Phase S1)
C00105510DB106-1.5.5.2	Route 3 CD Lanes (Phase S1)
C00105510DB106-1.5.5.2.1	Route 3 to Cowan Blvd. (Phase S1)
C00105510DB106-1.5.5.2.5	Cowan Blvd to Fall Hill (Phase S1)
C00105510DB106-1.5.5.2.2	Fall Hill to Slip Ramp (Sta. 5515) (Phase S1)
C00105510DB106-1.5.5.2.4	RT 3 Ramp C Tie-In and Slip Ramp to River (Phase S2)
C00105510DB106-1.5.5.2.6	Temporary GP to CD Crossover (Phase S2)
C00105510DB106-1.5.5.2.3	Slip Ramp (Sta. 5515 to 5522) (Phase S3)
C00105510DB106-1.5.5.2.7	RT 3 Ramp C Tie-In and Removal of Temporary GP to CD Crossover (Phase S4)
C00105510DB106-1.5.6	B609 Rappahannock River Bridge (Geographical Area 2)
C00105510DB106-1.5.6.1	Abutment A
C00105510DB106-1.5.6.2	Abutment B
C00105510DB106-1.5.6.3	Pier 1
C00105510DB106-1.5.6.4	Pier 2
C00105510DB106-1.5.6.5	Pier 3
C00105510DB106-1.5.6.6	Pier 4
C00105510DB106-1.5.6.7	Superstructure
C00105510DB106-1.5.7	Improvements North of Rappahannock River Bridge (Geographical Area 3)
C00105510DB106-1.5.7.6	I-95 NB GP (Phase N1)
C00105510DB106-1.5.7.9	CD Lanes North of Ramp C2 Overlap Area (Phase N1)
C00105510DB106-1.5.7.3	CD Lanes North of Ramp C2 Overlap Area (Phase N2)
C00105510DB106-1.5.7.1	Route 17 Ramp D (Phase N2)
C00105510DB106-1.5.7.10	Route 17 Ramp B (Phase N2)
C00105510DB106-1.5.7.11	Route 17 Ramp C1 (Phase N2)
C00105510DB106-1.5.7.5	Centreport Auxiliary Lane (Option # 1) (Phase N2)
C00105510DB106-1.5.7.8	CD Lanes - Rte 17 Interchange (Phase N3)
C00105510DB106-1.5.7.13	Route 17 Ramp B (Phase N3)
C00105510DB106-1.5.7.4	Route 17 Loop C and D (Phase N3)
C00105510DB106-1.5.7.2	Bridge B608 I-95 NB CD Lanes over Route 17 (Option #2) (Phase N3)
C00105510DB106-1.5.7.2.1	Abutment A
C00105510DB106-1.5.7.2.2	Pier
C00105510DB106-1.5.7.2.3	Abutment B
C00105510DB106-1.5.7.2.4	Superstructure
C00105510DB106-1.5.7.15	Sidewalk Connection through I-95/Route 17 Interchange (Option #3) (N3)
C00105510DB106-1.5.7.7	CD Lanes to Ramp D and Temporary GP to Ramp D (N4)
C00105510DB106-1.5.7.14	RT 17 Mill and Overlay (Phase N4)
C00105510DB106-1.5.7.12	Final Tie-Ins and Removal of Temporary GP to Ramp D (Phase N4)

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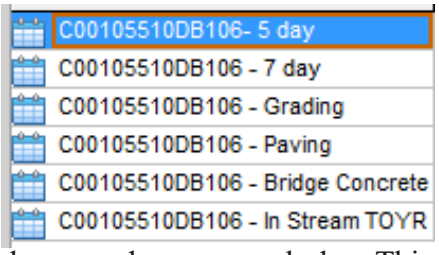
Calendars

The Wagman Team has incorporated six (6) calendars into the Project Schedule:



- **Calendar 1 – "C00105510DB106 – 5 Day"** This calendar is based on five (5) working days per week. In addition to weekends, this calendar designates all major holidays as non-working days. This calendar is used for all production activities that are not affected by weather.
- **Calendar 2 – "C00105510DB106 – 7 Day"** This calendar holds every day as a work day. This calendar has been assigned to all administrative, design, and review activities. For example, this calendar has been assigned to VDOT's 21 calendar day review activities.
- **Calendar 3 – "C00105510DB106 – Bridge Concrete"** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from December 24th to February 15th as non-working days. This calendar has been assigned to all concrete-related bridge superstructure construction activities such has bridge deck and parapet wall pours.
- **Calendar 4 – "C00105510DB106 – Grading"** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from January 1st to February 28th as non-working days. This calendar has been assigned to all roadway grading-related construction activities such as rough grading and installation of stone base material.
- **Calendar 5 – "C00105510DB106 – In Stream TOYR"** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from February 15th to June 30th as non-working days. This calendar has been assigned to all bridge construction activities that occur in the Rappahannock River, and are subject to environmental time-of-year restrictions. For example, this calendar has been assigned to causeway and cofferdam construction at B609. (The Freshwater Mussel TOYR is not being exclusively included, based on historical data and the report provided in the RFP Informational Package; however, if the results of the new survey indicates a need for the TOYR, we can accommodate the restrictions without impact to the project schedule.
- **Calendar 6 – "C00105510DB106 – Paving"** This calendar is based on five (5) working days per week. In addition to weekends and major holidays, this calendar also designates the period from December 24th to March 15th as non-working days. This calendar has been assigned to all roadway paving activities such as the installation of base, intermediate, and surface asphalt.

Our project schedule incorporates the following holidays:

- **New Year's Day Holiday** – Holiday from 7:00AM December 31st until 7:00 AM the next work day following New Year's Day, unless the holiday occurs on a Sunday. If holiday falls on Sunday, then Monday will also be considered a holiday, and work will not occur until 7:00 AM on Tuesday.
- **Easter Holiday** – Holiday from 7:00AM on Good Friday until 7:00 AM on the Monday following Easter Sunday.
- **Memorial Day Holiday** – Holiday from 7:00AM on Friday prior to Memorial Day until 7:00 AM on the Tuesday following Memorial Day.
- **Independence Day Holiday** – Holiday from 7:00AM on the day prior to July 4th, until 7:00 AM the next work day following July 4th unless the holiday occurs on a Sunday. If holiday falls on Sunday, then Monday will also be considered a holiday, and work will not occur until 7:00 AM on Tuesday.
- **Labor Day Holiday** – Holiday from 7:00AM on the Friday before Labor Day until 7:00 AM on the Tuesday following Labor Day.
- **Thanksgiving Day Holiday** – Holiday from 7:00AM on the Wednesday before Thanksgiving Day until 7:00 AM on the Monday following Thanksgiving Day.

- **Christmas Day Holiday** – Holiday from 7:00AM on the day prior to December 25th until 12:00 PM the day after December 25th.

Plan to Accomplish the Work

The narrative below describes the Wagman Team's project delivery plan grouped by major Work Breakdown Structure (WBS) divisions. These include quality control, design, geotechnical investigation, right-of-way acquisition, environmental investigation & permitting, utility relocation, public involvement, and construction. The overall project delivery sequence was developed based on the roadway and bridge improvement concepts shown in the RFP, along with the MOT, geotechnical, environmental, existing utility, and end user requirements identified by the RFP and the Wagman Team. The Wagman Team divided the project into three (3) geographic areas, each area with multiple construction phases.

Design Phase

The Wagman Team will finalize the design from the current RFP documents to obtain approval on the Release for Construction (RFC) plan set. Design activities will include surveying, roadway design, bridge design, retaining wall design, traffic control, MOT plans, ITS, signs, signals, guardrail, pavement markings, drainage design, design of SWM facilities, geotechnical investigation (including borings and analysis), materials analysis, hydraulic design and pavement design. The project will be delivered by completing roadway design in two phases of design: ROW design, and final design (RFC). Structure plans will have a Stage 1 and Stage 2 submittal. Design-related activities to be performed during each phase are outlined

below.

ROW Design submittal activities will focus on expanding the RFP documents. The Wagman Team will perform numerous independent studies of the information contained in the RFP documents to confirm that the information provided to date is correct and suitable for use in designing the project. These additional studies will include performing supplemental field surveying to confirm horizontal and vertical control of key project features verifying type and location of existing subsurface utilities; performing legal research to confirm existing ROW and property limits; and performing a thorough geotechnical field investigation to confirm geotechnical conditions for the bridge foundations and roadway design. The findings of these studies will be summarized in a series of reports and, if discrepancies occur between the information in the RFP documents and the Wagman Team studies, these results will be presented to VDOT for review and evaluation as outlined in the Scope Validation process for the project.

Roadway plans will be developed including performing geometric design; preparing cross sections and defining limits of construction; completing SWM and E&S control design; preparing plans for traffic control devices as well as a TMP; and completing the preliminary bridge plans working closely with the geotechnical engineers. Required ROW limits will be evaluated and depicted on the plans, and preliminary utility relocation plans will be prepared. The goal of this submittal is to gain ROW Authorization to proceed with ROW acquisition services on the project.

The ROW, environmental coordination and approval, and utility relocation plan activities will be developed for individual submissions to VDOT and other regulatory agencies for review and approval.

Design Plan submittal will occur after receiving ROW design approval with the ROW authorization from VDOT. The Wagman Team will submit the final design plans and reports to VDOT for review and approval. To take full advantage of the accelerated/early construction opportunities afforded by the Design-Build project delivery method, the Wagman Team intends to develop Early Work and Final RFC plan sets as follows:

- RFC Plan Set for Early Roadway Work Activities – Clearing, Grading, E&S, MOT & TMP
- RFC Plan Set for Final Roadway Work Activities – Overlap Area
- RFC Plan Set for Final Roadway Work Activities- Auxiliary Lane extension (Option 1)
- RFC Plan Set for Proposed NB GP Lanes Bridge Over Rappahannock River B609
- RFC Plan Set for Proposed NB CD Lanes Bridge Over Route 17 B608 (Option 2)

- RFC Plan Set for Final Roadway Work Activities – Final Roadway, Drainage, SWM, E&S, Sound Barrier, Retaining Wall, ITS, Signs, Signals, and Sidewalk Connection I-95/Route 17 Interchange (Option 3)

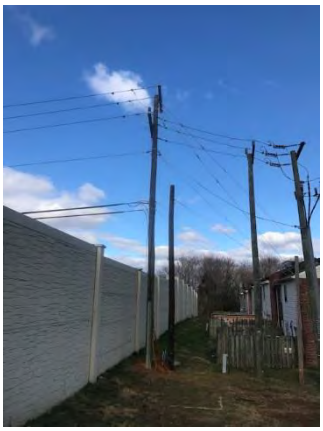
Environmental Permitting activities will begin shortly after receiving NTP and will include a thorough environmental evaluation and confirmation of the information provided in the RFP documents. The Wagman Team will prepare a comprehensive environmental management plan that includes a matrix of environmental commitments and compliance requirements that; identifies milestone dates and integrates those into the project schedule; identifies the responsible party; and summarizes requirements.

The final noise analysis will be conducted including the public polling of property owners which are affected and benefited by the effected noise abatement measures.

Final environmental activities will begin immediately after receiving preliminary plan approval from VDOT. At this point in the design, the footprint for the project will be firmly established and the Wagman Team will identify the final environmental impacts required to construct the project in its entirety. The Wagman Team will strive to avoid and minimize environmental impacts during design development and construction. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and the registration statement for the Virginia Stormwater Management Permit will be submitted immediately following the SWPPP development.

Right-of-Way Acquisition - Starting at NTP the Wagman Team will evaluate the proposed ROW, permanent easements, and temporary easements as shown on the plans. If changes are required, either due to a change in the required ROW or a change based on the results of legal research, the Wagman Team will prepare updated preliminary ROW plans and a ROW data sheet and will submit to VDOT for review and approval. Preliminary ROW activities will begin after receiving NTP. The Wagman Team will begin performing the legal research for the identified parcels on the preliminary plans at the same time that our survey crew is validating the survey information provided in the RFP package. Each parcel has an associated milestone in the schedule. The activity for VDOT to acquire the ROW for the Overlap Area is also included in the schedule.

Utility Relocations – The Wagman Team's project schedule includes activities for holding the Utility Field Investigation (UFI) meeting, followed by preparation of the Plan & Estimate (P&E) estimates by the utility owner, approval of the P&E, and construction of the relocation. Although we have already met with each individual utility company to discuss the proposed relocations and prior rights, the utility relocation schedule starts with formal UFI meetings following completion of all utility test pits. This will enable our Team to confirm and adjust our list of utility conflicts based on the field test pit data prior to holding the formal UFI meeting. We will continue this early coordination of utilities throughout the Design Phase of the Project to ensure that our Design Plans are coordinated with the utility relocation plans. The utility relocations are anticipated to be completed prior to impacting construction operations, thus avoiding potential construction delays.



Critical Design/Permitting Hold Points have been incorporated in our project schedule as required by the RFP and are shown below.

Planned Schedule Hold Point	Hold Point Duration
VDOT Review and Approve Existing Drainage Culvert Report	21 Calendar Days
VDOT Review and Approve QA/QC Plan	21 Calendar Days
Agency Review and Meeting for Design Exception(s)/Waiver(s)	21 Calendar Days
Agency Review & Approval of Exception(s)/Waiver(s)	21 Calendar Days

VDOT Review Geotechnical Boring Location Plan	21 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B609	90 Calendar Days
VDOT Review Bridge Geotechnical Engineering Report B608-Option 2	90 Calendar Days
VDOT Review Noise Barrier Engineering Report	90 Calendar Days
VDOT Review Retaining Walls Geotechnical Engineering Report	90 Calendar Days
VDOT Review Roadway Geotechnical Engineering Report Remainder of Work Packages	90 Calendar Days
VDOT Review Roadway Geotechnical Engineering Report – Option 1	90 Calendar Days
VDOT Review and Comment ROW Plans 1st Submittal	21 Calendar Days
VDOT Review / Approve ROW Plans Final	21 Calendar Days
VDOT/FHWA Review and Comment EWP 1st Submittal	21 Calendar Days
VDOT/FHWA Review/Approve and Comment EWP Final Submittal	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal-Option 1	21 Calendar Days
VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal-Option 1	21 Calendar Days
VDOT Review and Approve H&HA	21 Calendar Days
VDOT/FHWA Review, Comment & Approve B608 Stage I Submission-Option 2	21 Calendar Days
VDOT/FHWA Review/Approval B608 Stage II Submission-Option 2	21 Calendar Days
VDOT/FHWA Review, Comment & Approve B609 Stage I Submission	21 Calendar Days
VDOT/FHWA Review/Approval B609 Stage II Submission	21 Calendar Days
VDOT/FHWA Review, Comment & Approve Retaining Walls Preliminary Submission	21 Calendar Days
VDOT/FHWA Review/Approval Retaining Walls Stage II Submission	21 Calendar Days
VDOT Review/Approval SPCC	21 Calendar Days
VDOT/FHWA Hazardous Material Phase I ESA - Hold Point	21 Calendar Days
Agency Reviews and Issuance of Section 404 Permit, WPP, SBP - Hold Point	185 Calendar Days
Agency Reviews and Issuance of EWP VPDES Stormwater General Permit & SWPPP Segment-Hold Point	25 Calendar Days
Agency Reviews and Issuance of Remainder WPs VPDES Stormwater General Permit & SWPPP-Hold Point	25 Calendar Days
VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point	21 Calendar Days
VDOT Rvw.&Approve EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold Point	21 Calendar Days
VDOT Rvw.&Approve Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold Point	21 Calendar Days

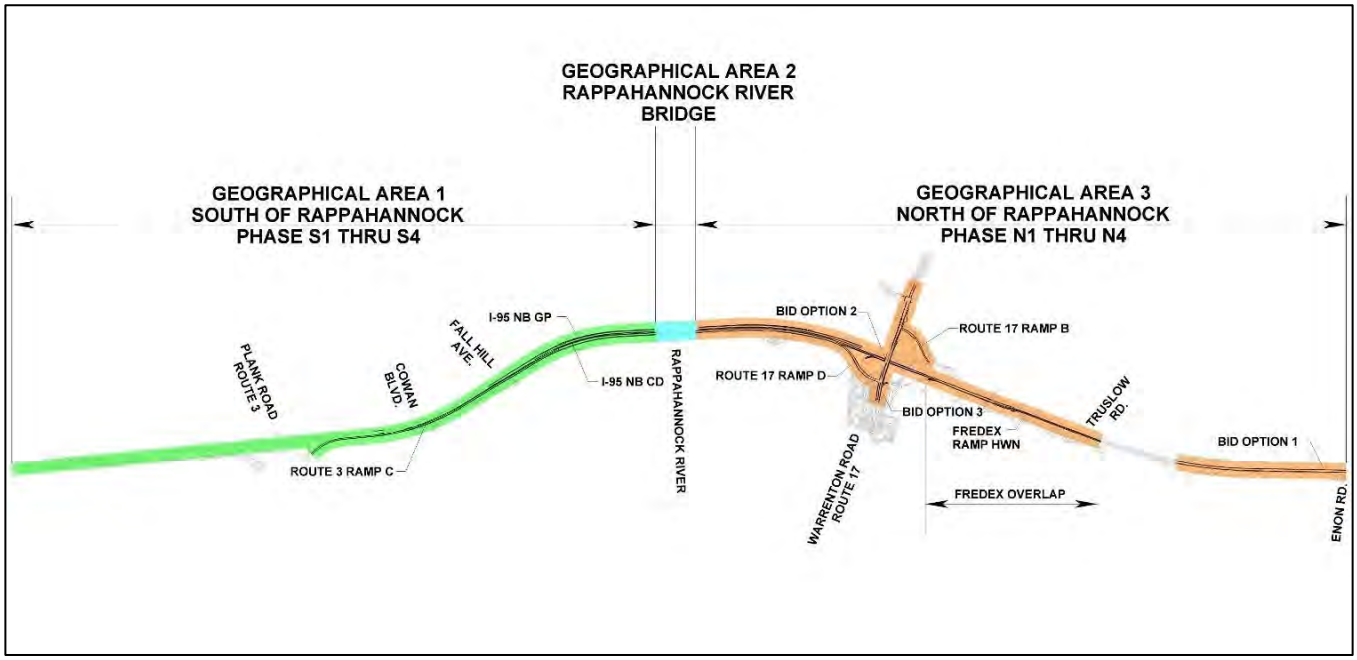
VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Causeway	21 Calendar Days
VDOT Review/Approval Noise Barrier Design	21 Calendar Days
VDHR Review B609 Stage I Design Plans	30 Calendar Days
VDHR Review B609 Stage II Design Plans	30 Calendar Days
VDOT Acquire Right of Way for Overlap Area Parcels	VDOT Duration
VDOT Review and Approve Acquisition Plan Inc. EQ-201 Revaluation - Hold Point	21 Calendar Days
VDOT Issue Notice to Proceed for ROW Acquisitions-Hold Point	13 Calendar Days
VDOT Rvw & Appr. Appraisal Packages, Just Compensation, Relocation Benefits and Admin. Settlements-Acquisitions	31 Calendar Days
VDOT/FHWA Issue Clearance for Construction - Acquisitions-Hold Point	21 Calendar Days
VDOT Review & Approve Utility Assembly	21 Calendar Days

Scope Validation - The scope validation period is 120 days after NTP, and the schedule depicts activities that are relevant to the validation work, and VDOT review of the submittal.

Public Outreach - The public outreach schedule includes developing and submitting our Emergency Contact List and Response Plan upon Notice to Proceed, holding citizen information meetings during the design phase, public information "Pardon our Dust" meetings at the start of construction and prior to major traffic switches, providing frequent updates to the Office of Public Affairs, and additional specific group meetings as necessary. The schedule includes "level of effort" type activities for these Public Information meetings intended to also cover many other public involvement activities that our Team will perform, including meeting with local businesses and affected property owners, attending meetings with homeowners associations, local government representatives, and community groups, and providing information for regular updates at progress meetings and weekly lane closure plans. These "level of effort" type activities will be further defined during development of our Baseline CPM.

Project Construction

The Wagman Team plans to use phased construction within three (3) distinct geographical areas to build and manage the project.



Geographical Area 1 – I-95 Segment South of the Rappahannock River

- Phase S1 – During Phase S1, the Wagman Team will perform initial mobilization activities, and proceed with the improvements associated with our planned Early Work design package. This early work will consist of the following construction activities:
  - Construction of NB GP Lanes in the I-95 median. I-95 NB traffic will be shifted to the right shoulder and temporary concrete barrier will be installed along the left shoulder.
  - MOT deployment, E&S installation, temporary and permanent storm water management facilities, clearing, grubbing, and rough grading within the existing median of I-95 from Station 4509 to the Rappahannock River. All clearing and grading work will be confined to those areas outside of the identified Jurisdictional Areas of the project. The purpose of the initial early work is to advance the construction of the proposed NB GP lanes south of the river.
  - Construction of the Noise Barrier C located south of Route 3.
  - Construction of retaining wall at the existing Noise Barrier Wall between Cowan Blvd and Fall Hill Ave.
  - Construction of Ramp C outside widening from Route 3 to the proposed slip ramp at Station 4518.

- Phase S2 – During Phase S2, the Wagman Team will proceed with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following construction activities:
  - Construction of Tie-In at Route 3 Ramp C where it merges with the NB CD Lanes (existing I-95). I-95 NB traffic will be shifted to the left shoulder.
  - Construction of the temporary NB GP to NB CD crossover at the slip ramp near Station 4518.
  - Construction of additional storm water management facilities

- MOT deployment, E&S Installation, final rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from Route 3 Ramp C to the Rappahannock River. The purpose of this work is to complete the proposed roadway improvements from Route 3 Ramp C to the Rappahannock River.

- Phase S3 – During Phase S3, the Wagman Team will complete the work included in the RFC plan set for final roadway improvements within the I-95 corridor from Route 3 Ramp C to the Rappahannock River. Work in Phase 3 will overlap with work previously commenced in Phase S2. The Phase S3 work will consist of the following construction activities:
  - MOT deployment, milling and build-up for the tie-in on the existing NB I-95 lanes to the proposed NB GP lanes. Wagman will detour traffic to the temporary NB GP to NB CD crossover at the slip ramp constructed in Phase S2. Once traffic is detoured, Wagman will complete the milling and build-up for the tie-in. Once the build-up and tie in are complete, the proposed NB GP lanes will open for traffic to cross the new NB Bridge B609.
  - The purpose of this work, along with the work from Phase S2, is to complete all proposed NB GP lane improvements in the median of I-95 south of the Rappahannock River.

- Phase S4 – During Phase S4, the Wagman Team will complete all remaining work south of the Rappahannock River. The Phase S4 work will include the following activities:
  - Completion of the tie-in to open the Route 3 Ramp C.
  - Completion of the slip ramp to the NB CD Lanes and removal of the temporary NB GP to NB CD crossover.
  - Installation of the balance of the proposed storm water management facilities south of the Rappahannock River.
  - Completion of all final paving (mill/overlay), striping, ITS, and signs south of the Rappahannock River.

Geographical Area 2 – Rappahannock River Bridge and Associated Access

- Rappahannock River Bridge B609 – Within this area of the project, the Wagman Team will construct the proposed bridge over the Rappahannock River. This work will include the following activities:
  - Use of the existing temporary construction access road (Quarry Access Road) to south bank of the Rappahannock River.
  - Installation of the temporary causeway/bridge access in Rappahannock River.
  - Installing cofferdams Pier 2
  - Installing cofferdams Pier 3
  - Installing SOE Pier 1
  - Installing SOE Pier 4
  - Installing SOE Abutments A & B
  - Construction of Abutments A & B
  - Construction of Piers 1 &4 (on land)
  - Construction of Piers 2 & 3 (in river)
  - Erection of bridge girders
  - Forming, pouring, curing, and stripping of bridge deck/parapet walls
  - Bridge deck grooving
  - Removal of cofferdams, temporary causeway/bridge access in Rappahannock River.

Geographical Area 3 – I-95 Segment North of the Rappahannock River (Including Route 17 Interchange and Options 1, 2 and 3)

- Phase N1 – During Phase N1, the Wagman Team will perform initial mobilization activities, and proceed with the improvement associated with our planned Early Work design package. This early work will consist of the following construction activities:

- MOT deployment, E&S installation, clearing, grubbing, and rough grading within the existing median of I-95 from the Rappahannock River to the northern terminus of the project. NB I-95 traffic will be shifted to the right shoulder and temporary barrier wall will be installed on the left shoulder. All clearing and grading work will be confined to those areas outside of the identified Jurisdictional Areas of the project. The purpose of the initial early work is to advance the construction of the proposed NB GP lanes north of the river.
- The Overlap Area north of Route 17 will be constructed to the right of I-95 including the proposed NB CD Lanes, FredEx Ramp HWN. NB I-95 traffic will be shifted to the left shoulder.
- Centreport Auxiliary Lane – Option 1 will be constructed.
- RT 17 Ramp D widening will occur on the outside with traffic shifted to the left shoulder.
- RT 17 outside widening east of Ramps C&D

- Phase N2 – During Phase N2, the Wagman Team will proceed with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following construction activities:
  - RT 17 Ramp B widening will occur on the outside with traffic remaining in the current shifted inside alignment.
  - RT 17 Ramp D widening will occur on the inside with traffic shifted to the right shoulder.
  - Temporary Signal will be installed at RT 17 and Ramp C & D Intersection.
  - Crossover will be constructed at Ramp C&D
  - RT 17 Loop C will close permanently
  - RT 17 Loop D will close temporarily
  - The Overlap Area north of Route 17 will be constructed to the left of I-95 including the proposed NB CD Lanes, FredEx Ramp HWN. NB I-95 traffic will be shifted to the right shoulder.

- Phase N3 – During Phase N3, the Wagman Team will continue with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following construction activities:
  - MOT deployment, E&S installation, Final clearing and rough grading, fine grading, drainage, underdrain, median barrier walls, base stone installation, asphalt paving, guardrail, striping, and signs within the existing median of I-95 from the Rappahannock River to the RT 17 Interchange. The purpose of this work is to complete the balance of the proposed NB GP lane roadway improvements in the median of I-95 north of the Rappahannock River.
  - A temporary ramp will be constructed from the proposed NB GP to Ramp D. RT 17 Ramp D will be open for all traffic to exit I-95 and travel east or west on RT 17.
  - Construction of the temporary NB GP to NB CD crossover so that I-95 NB traffic can be temporarily detoured. Once traffic is detoured, Wagman will complete the milling and build-up for the tie-in. Once the build-up and tie in are complete on the NB GP Lanes, the proposed NB GP lanes will open for traffic crossing the new NB Bridge B609. This phase N3 ties to phase S3 for coordination in opening the bridge and shifting traffic to the new NB River Bridge B609.
  - Construction of the Sidewalk Connection through I-95/Route 17 Interchange- Option 3.
  - Construction of the proposed NB GP lanes bridge over Route 17 (B608) – Option 2.
  - MOT deployment, E&S installation, clearing, grubbing, rough grading, fine grading, drainage, underdrain, base stone installation, asphalt paving, guardrail, striping, and signs associated with the proposed NB CD from the River to RT 17 Ramp C. The purpose of this work is to build the roadway approaches necessary to put the newly constructed NB GP lanes bridge B608 over Route 17 into service upon completion of the bridge work.
  - RT 17 Ramp B widening will occur on the inside with traffic shifted to the outside shoulder.

- Phase N4 – During Phase N4, the Wagman Team will complete all remaining work north of the Rappahannock River with work included in the RFC plan set for final roadway improvements within the I-95 corridor. This work will consist of the following construction activities:
  - Removal of the temporary ramp from the NB GP Lanes to Ramp D.
  - The purpose of this work is to complete the proposed improvements associated with Route 17 and to open all traffic to the final configuration.
  - Open the NB CD Lanes from RT 3 to cross the river and B608.
  - Removal of temporary traffic signal at Route 17 Interchange, and the restoration of the existing Route 17 ramp alignment.
  - Open Loop D.
  - Installation of the balance of the proposed storm water management facilities north of the Rappahannock River.
  - Completion of all final paving (mill/overlay), striping, ITS and signs north of the Rappahannock River.

Major Traffic Shifts

The Wagman Team's plan for project construction anticipates the following major traffic switch and MOT milestones during construction:

Planned Traffic Shifts / MOT Milestone	Planned Shift Date
Shift Traffic onto the NB Overlap Area	10/29/2021
Shift Traffic onto the new NB River Bridge	4/17/2023
Shift Traffic onto the new CD Bridge	8/1/2023

Project Critical Path

The Critical Path will be continually analyzed throughout the project to ensure the entire team is concentrating on activities required to achieve key project milestones. The overall critical path, based on the Longest Path, includes construction of B609 and then construction of the NB CD Lanes from the river to Ramp D. While not on the Longest Path, the Overlap Area activities are critical in order to meet the interim milestone and represent a separate critical path.

The overall critical path of the project (longest path) is summarized below:

- Early Work Package
- Environmental Permit Approval
- Construction of B609
- Shifting Traffic onto the New NB Bridge
- Construction of NB CD Lanes to Ramp D
- Final Tie-Ins and Removal of Temporary Asphalt to Ramp D

The critical path for the FredEx Overlap interim milestone is summarized below:

- ROW for Overlap Area
- Construction of Overlap Area
- Shifting Traffic onto the NB Overlap Area

The complete critical path is shown in Table 4.6-3. The activities have been filtered by both Longest Path and Critical in order to include the interim milestone activities.

Table 4.6-3: *Critical Path Activities*

C00105510DB106-1, I-95 Northbound | Classic WBS Layout | Data Date : 06-Apr-20

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Total Float
I-95 Northbound Rappahannock River Crossing Technical Proposal		1502.9d	06-Apr-20	17-May-24	0.0d
Project Milestones		1503.0d	06-Apr-20	17-May-24	0.0d
G1070	Notice of Intent to Award	0.0d	06-Apr-20		0.0d
G1000	CTB Approval / Notice of Award	0.0d	20-May-20		2.0d
G1020	Design-Build Contract Execution	0.0d	26-May-20		11.0d
G1080	Notice to Proceed	0.0d	28-May-20		11.0d
G1220	Interim Milestone- October 29, 2021 (Overlap Area)	0.0d		29-Oct-21	0.0d
G1040	Final Punchlist	30.0d	18-Apr-24	17-May-24	0.0d
G1030	Final Completion - May 17, 2024	0.0d		17-May-24	0.0d
I-95 Design / Environmental / Right-of-Way / Utilities		207.9d	06-Apr-20	30-Oct-20	12.0d
Design Phase		133.0d	28-May-20	07-Oct-20	11.0d
Roadway Design		133.0d	28-May-20	07-Oct-20	11.0d
Early Work Package (EWP) Clearing / Grading / E&S / MOT & TMP		133.0d	28-May-20	07-Oct-20	11.0d
D1720-0	Develop EWP Clearing / Grading 1st Submittal	70.0d	28-May-20	05-Aug-20	11.0d
D1740-0	Develop EWP MOT & TMP 1st Submittal	65.0d	04-Jun-20	07-Aug-20	11.0d
D1540-0	Design QA/QC EWP 1st Submittal	8.0d	08-Aug-20	15-Aug-20	11.0d
D2830-0	Submit EWP Clearing / Grading / E&S / MOT Plans & TMP 1st Submittal	1.0d	16-Aug-20	16-Aug-20	11.0d
D3420-0	VDOT/FHWA Review and Comment EWP 1st Submittal	21.0d	17-Aug-20	06-Sep-20	11.0d
D1060-0	Address Comments Develop EWP Clearing / Grading Final Submittal	11.0d	09-Sep-20	19-Sep-20	11.0d
D1080-0	Address Comments Develop EWP MOT & TMP Final Submittal	15.0d	20-Sep-20	04-Oct-20	11.0d
D1550-0	Design QA/QC EWP Final Submittal	2.0d	05-Oct-20	06-Oct-20	11.0d
D2840-0	Submit EWP Clearing / Grading / E&S / MOT Plans & TMP Final Submittal	1.0d	07-Oct-20	07-Oct-20	11.0d
Environmental		22.0d	08-Oct-20	29-Oct-20	13.0d
Environmental Permits		22.0d	08-Oct-20	29-Oct-20	13.0d
Environmental Permit Applications		1.0d	08-Oct-20	08-Oct-20	13.0d
D2530	Request EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certification/Commitments for Construction	1.0d	08-Oct-20	08-Oct-20	13.0d
Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)		21.0d	09-Oct-20	29-Oct-20	13.0d
D3350	VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Causeway	21.0d	09-Oct-20	29-Oct-20	13.0d
Right-of-Way		207.9d	06-Apr-20	30-Oct-20	0.0d
D3850	VDOT Acquire Right of Way for Overlap Area Parcels	208.0d	06-Apr-20	30-Oct-20	0.0d
D3750	VDOT Complete Acquisition Parcel 78,79 (I-95 RT 17 Properties LLC)	0.0d		30-Oct-20	0.0d
D3760	VDOT Complete Acquisition Parcel 80 (Williamson Michael J & Chunga)	0.0d		30-Oct-20	0.0d
D3770	VDOT Complete Acquisition Parcel 81 (Denson Theresa L)	0.0d		30-Oct-20	0.0d
D3780	VDOT Complete Acquisition Parcel 82 (Schranz John E & Jan L)	0.0d		30-Oct-20	0.0d
D3790	VDOT Complete Acquisition Parcel 83 (Cash Debra Lynn & Hubert Wayne)	0.0d		30-Oct-20	0.0d
D3800	VDOT Complete Acquisition Parcel 84 (Hull William L Jr & Milloy Jamie K)	0.0d		30-Oct-20	0.0d
D3810	VDOT Complete Acquisition Parcel 85-86 (Blake Brenda S)	0.0d		30-Oct-20	0.0d
D3820	VDOT Complete Acquisition Parcel 87 (Kirkland Robert Francis)	0.0d		30-Oct-20	0.0d
D3830	VDOT Complete Acquisition Parcel 88 (Glencairne Farm LP)	0.0d		30-Oct-20	0.0d
Construction		1262.9d	02-Nov-20	17-Apr-24	0.0d
Major Traffic Shifts		536.0d	29-Oct-21	18-Apr-23	0.1d
C1140	Shift Traffic onto the NB Overlap Area	1.0d	29-Oct-21	30-Oct-21	0.0d
C1130	Shift Traffic onto the new NB River Bridge	1.0d	17-Apr-23	18-Apr-23	0.1d
Improvements South of Rappahannock River Bridge (Geographical Area 1)		32.9d	16-Mar-23	17-Apr-23	0.0d
Route 3 CD Lanes (Phase S1)		32.9d	16-Mar-23	17-Apr-23	0.0d
Slip Ramp (Sta. 5515 to 5522) (Phase S3)		32.9d	16-Mar-23	17-Apr-23	0.0d
SCD1400	Mill/Buildup Tie-Ins	18.0d	16-Mar-23	10-Apr-23	0.0d
SCD1410	Pavement Markings	5.0d	11-Apr-23	17-Apr-23	0.0d
B609 Rappahannock River Bridge (Geographical Area 2)		785.9d	16-Dec-20	09-Feb-23	34.0d
CR1050	Construct Causeway to Pier 3	40.0d	16-Dec-20	12-Feb-21	9.0d
Abutment B		15.0d	28-Oct-22	17-Nov-22	9.0d
CR1670	Install Select Backfill Abutment B	5.0d	28-Oct-22	03-Nov-22	9.0d
CR1690	Install Sleeper Slab Abutment B	5.0d	04-Nov-22	10-Nov-22	9.0d
CR1430	Install Approach Slab Abutment B	5.0d	11-Nov-22	17-Nov-22	9.0d
Pier 2		203.9d	30-Jul-21	18-Feb-22	13.0d
CR1440	Install Cofferdam Pier 2	20.0d	30-Jul-21	26-Aug-21	9.0d
CR1140	Excavate Footing Pier 2	15.0d	27-Aug-21	17-Sep-21	9.0d

Page 1 of 3

TASK filters: Critical, Longest Path.

C00105510DB106-1, I-95 Northbound	Classic WBS Layout	Data Date : 06-Apr-20			
Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Total Float
CR1320	Form, Pour, Cure & Strip Footing Pier 2	15.0d	20-Sep-21	08-Oct-21	9.0d
CR1200	Form, Pour, Cure & Strip Column Lift 1 Pier 2	15.0d	11-Oct-21	29-Oct-21	9.0d
CR1830	Remove Cofferdam Pier 2	20.0d	01-Nov-21	30-Nov-21	9.0d
CR1240	Form, Pour, Cure & Strip Column Lift 2 Pier 2	15.0d	01-Dec-21	21-Dec-21	9.0d
CR1280	Form, Pour, Cure & Strip Column Lift 3 Pier 2	15.0d	22-Dec-21	14-Jan-22	9.0d
CR1380	Form, Pour, Cure & Strip Pier Cap Pier 2	20.0d	17-Jan-22	11-Feb-22	9.0d
CR1770	Prep Bearing Seats & Install Bearing Assemblies Pier 2	5.0d	14-Feb-22	18-Feb-22	9.0d
Pier 3		20.0d	01-Jul-21	29-Jul-21	9.0d
CR1450	Install Cofferdam Pier 3	20.0d	01-Jul-21	29-Jul-21	9.0d
Superstructure		353.9d	21-Feb-22	09-Feb-23	34.0d
CR1090	Erect Girders Span B	15.0d	21-Feb-22	11-Mar-22	9.0d
CR1100	Erect Girders Span C	15.0d	14-Mar-22	01-Apr-22	9.0d
CR1110	Erect Girders Span D	15.0d	04-Apr-22	25-Apr-22	9.0d
CR1120	Erect Girders Span E	15.0d	26-Apr-22	16-May-22	9.0d
CR1460	Install Deck Forms Span A	10.0d	17-May-22	31-May-22	9.0d
CR1470	Install Deck Forms Span B	10.0d	01-Jun-22	14-Jun-22	9.0d
CR1560	Install Overhangs Span A	10.0d	01-Jun-22	14-Jun-22	9.0d
CR1480	Install Deck Forms Span C	10.0d	15-Jun-22	28-Jun-22	9.0d
CR1570	Install Overhangs Span B	10.0d	15-Jun-22	28-Jun-22	9.0d
CR1610	Install Rebar Span A	10.0d	15-Jun-22	28-Jun-22	9.0d
CR1490	Install Deck Forms Span D	10.0d	29-Jun-22	13-Jul-22	9.0d
CR1580	Install Overhangs Span C	10.0d	29-Jun-22	13-Jul-22	9.0d
CR1620	Install Rebar Span B	10.0d	29-Jun-22	13-Jul-22	9.0d
CR1500	Install Deck Forms Span E	10.0d	14-Jul-22	27-Jul-22	9.0d
CR1590	Install Overhangs Span D	10.0d	14-Jul-22	27-Jul-22	9.0d
CR1630	Install Rebar Span C	10.0d	14-Jul-22	27-Jul-22	9.0d
CR1600	Install Overhangs Span E	10.0d	28-Jul-22	10-Aug-22	9.0d
CR1640	Install Rebar Span D	10.0d	28-Jul-22	10-Aug-22	9.0d
CR1650	Install Rebar Span E	10.0d	11-Aug-22	24-Aug-22	9.0d
CR1750	Pour Decks	40.0d	25-Aug-22	20-Oct-22	9.0d
CR1070	Cure Deck	7.0d	21-Oct-22	27-Oct-22	13.0d
CR1510	Install East Parapet	10.0d	18-Nov-22	05-Dec-22	9.0d
CR1740	Install West Parapet	10.0d	06-Dec-22	19-Dec-22	9.0d
CR1860	Strip Overhang Forms	25.0d	20-Dec-22	26-Jan-23	24.0d
CR1410	Groove Deck	10.0d	27-Jan-23	09-Feb-23	24.0d
Improvements North of Rappahannock River Bridge (Geographical Area 3)		1262.9d	02-Nov-20	17-Apr-24	0.0d
CD Lanes North of Ramp C2 Overlap Area (Phase N1)		276.9d	02-Nov-20	05-Aug-21	0.0d
CNCD2110	Shift Traffic to Inside Shoulder of CD & GP Lanes	5.0d	02-Nov-20	06-Nov-20	0.0d
CNCD2120	Install MOT for Improvements to Outside Widening	5.0d	09-Nov-20	13-Nov-20	0.0d
CNCD2130	Install E&S Controls	20.0d	16-Nov-20	15-Dec-20	0.0d
CNCD2140	Clear & Grub	20.0d	16-Nov-20	15-Dec-20	0.0d
CNCD2150	Mass Grading	80.0d	23-Dec-20	13-Apr-21	0.0d
CNCD2160	Install Drainage	35.0d	14-Apr-21	02-Jun-21	0.0d
CNCD2330	ITS Installation	20.0d	03-Jun-21	30-Jun-21	0.0d
CNCD2190	Install Base Stone	10.0d	01-Jul-21	15-Jul-21	0.0d
CNCD2200	Install Underdrain	5.0d	16-Jul-21	22-Jul-21	0.0d
CNCD2210	Install Asphalt to Intermediate	10.0d	23-Jul-21	05-Aug-21	0.0d
CD Lanes North of Ramp C2 Overlap Area (Phase N2)		84.9d	06-Aug-21	29-Oct-21	0.0d
CNCD2000	Install MOT for Improvements to Inside Shoulder	2.0d	06-Aug-21	09-Aug-21	0.0d
CNCD2030	Sawcut & Demo Pavement	5.0d	10-Aug-21	16-Aug-21	0.0d
CNCD2060	Fine Grade Roadway	10.0d	17-Aug-21	30-Aug-21	0.0d
CNCD2070	Install Base Stone	5.0d	31-Aug-21	07-Sep-21	0.0d
CNCD2080	Install Underdrain	5.0d	08-Sep-21	14-Sep-21	0.0d
CNCD2090	Install Asphalt to Intermediate	5.0d	15-Sep-21	21-Sep-21	0.0d
CNCD2220	Install Surface Asphalt	5.0d	22-Sep-21	28-Sep-21	0.0d
CNCD2230	Pavement Markings	3.0d	29-Sep-21	01-Oct-21	0.0d
CNCD2250	Install Signs	15.0d	04-Oct-21	22-Oct-21	0.0d
CNCD2320	Remove MOT	5.0d	25-Oct-21	29-Oct-21	0.0d

Page 2 of 3

TASK filters: Critical, Longest Path.

C00105510DB106-1, I-95 Northbound	Classic WBS Layout	Data Date : 06-Apr-20

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Total Float
CD Lanes to Ramp D and Temporary GP to Ramp D (N4)		272.9d	19-Apr-23	16-Jan-24	59.0d
CNCD1000	Install MOT (Barrier on Right Shoulder of I-95)	10.0d	19-Apr-23	02-May-23	0.0d
CNCD1010	Install E&S Controls	30.0d	03-May-23	14-Jun-23	0.0d
CNCD1020	Clear & Grub	20.0d	17-May-23	14-Jun-23	0.0d
CNCD1030	Mass Grading	20.0d	15-Jun-23	13-Jul-23	0.0d
CNCD1050	Install Drainage	30.0d	14-Jul-23	24-Aug-23	0.0d
CNCD1060	Fine Grade Roadway	15.0d	25-Aug-23	15-Sep-23	0.0d
CNCD1070	Install Median Barrier	15.0d	18-Sep-23	06-Oct-23	0.0d
CNCD1080	Install Base Stone	15.0d	09-Oct-23	27-Oct-23	0.0d
CNCD1090	Install Underdrain	5.0d	30-Oct-23	03-Nov-23	0.0d
CNCD1100	Install Asphalt to Intermediate	10.0d	06-Nov-23	17-Nov-23	0.0d
CNCD1110	Install Surface Asphalt	10.0d	20-Nov-23	05-Dec-23	0.0d
CNCD1120	Install Guardrail	5.0d	06-Dec-23	12-Dec-23	0.0d
CNCD1130	Pavement Markings	8.0d	13-Dec-23	22-Dec-23	0.0d
CNCD1140	Signs	10.0d	26-Dec-23	09-Jan-24	43.0d
CNCD1150	Remove MOT	5.0d	10-Jan-24	16-Jan-24	43.0d
Final Tie-Ins and Removal of Temporary GP to Ramp D (Phase N4)		30.9d	18-Mar-24	17-Apr-24	0.0d
CNCAL1160	Install Surface Asphalt	9.0d	18-Mar-24	28-Mar-24	0.0d
CNCAL1180	Pavement Markings	4.0d	29-Mar-24	03-Apr-24	0.0d
CNCAL1190	Signs	5.0d	04-Apr-24	10-Apr-24	0.0d
CNCAL1200	Remove MOT	5.0d	11-Apr-24	17-Apr-24	0.0d

	Page 3 of 3	TASK filters: Critical, Longest Path.

Schedule Management

The schedule is the most important tool in the construction management process and is an efficient method to communicate the intended sequence and progress of the project to the construction team as well as the project stakeholders. The schedule is an extremely useful and productive planning tool. The Wagman Team takes pride in our detailed advance planning for safe and efficient execution of the work. Our Construction Managers, Superintendents, Safety Professionals, and Craft Supervisors use this critical tool as the first step in developing Activity Hazard Analyses and Activity Work Plans. In addition to early planning, the schedule is used to monitor the project's progress and help identify potential deficiencies and problem areas before they develop into a critical impact.

The project management team will continually review and monitor the schedule and use the information gathered to develop mitigation strategies for any activities that are identified as potential impacts. This proactive approach will ensure that the project continues to move forward and that any potential delays are addressed immediately. A variety of different tools will be utilized to assist with this process, including but not limited to, the following:

- Weekly schedule meetings between the engineering and construction team members during the design phase
- Weekly construction scheduling meetings throughout the duration of the construction process with the construction team (including management)
- Monthly progress meetings to include all project stakeholders, project team members, and subcontractors
- Three-week look ahead schedules
- RFI logs
- Submittal logs
- Work plans
- Subcontract/purchase order logs
- Shop drawing tracking logs
- Weekly manpower and equipment reviews.

All of the above referenced tools will be utilized simultaneously to provide a current and realistic picture of the progress and status at any given time. Information will be presented at meetings to all who are involved for the opportunity to discuss and address any concerns in front of all that are affected. This keeps the line of communication open and allows resolutions and recovery strategies to be developed at an early stage; therefore, preventing further conflict.

The project schedule will also be critically important to the management of our QA/QC inspection, testing, and documentation efforts. By resource loading our construction activities with crews classified by construction discipline, and reviewing the associated resource histograms on a weekly basis, our team will be able to identify all current and future QA/QC hold points, and to quantify QA/QC coverage and testing resources needed to provide robust quality control in a timely and efficient manner.

The Wagman Team has developed and refined numerous best practices related to QA/QC in our delivery of VDOT DB projects in multiple districts. These practices have recently been enhanced to satisfy the expectations communicated to our overall industry by VDOT Senior Management. This excellent performance was recently validated by the VDOT OIA initial QCIP audit of our I-95 SB RRC where the Design Builder (Wagman) obtained a score of 96.36. The following practices will be implemented on this project:

- All key and value added staff will remain committed to the project and not delegate their duties.
- The CPM schedule will include separate activities for constructability and QA/QC reviews by the Wagman Team as well as VDOT and agency reviews. The EICE will ensure these reviews occur and that the design submittals will be stamped after review and prior to formal submission.
- Written work plans are developed for construction activities with noted witness and hold points for safety, QA, and QC inspections. These written plans will be reviewed and incorporated into the formal Preparatory Meetings

- Proactive QA/QC inspections with vigilant written documentation (inspection logs, Deficiencies, and NCRs) of any issues with potential to affect quality or safety for tracking and follow through until formal resolution by the EIC and/or Designer/Engineer of Record as required.
- The QAM will hold formal QA/QC meetings at the project field office at least weekly to review: look ahead schedules, staffing assignments, preparatory meetings, QA/QC logs, inspection reports, and the quantity ledger book.
- Additional Wagman Team Members (SWM/ESC Design Lead, EIC, Safety Manager, Sr. QA Inspector, and Sr. QC Inspector) will assist the ESC Manager by rotating their participation in the Construction Runoff Control Inspections (CRCI).
- CRCI will occur twice a week at a minimum and after every measurable storm event.
- Contractor QA/QC Plan will be updated and maintained with all proper official documentation.

Subcontractor and Material Supplier Scheduling

Subcontractors and material suppliers are a critical part of the project schedule. The Wagman Team will closely evaluate each subcontractor and supplier based on quality, performance, and reputation. Beginning with the initial subcontract paperwork, each subcontractor will be intimately involved with every aspect of the project schedule, and their input will be vital. Suppliers will go through a similar process. This includes progress meetings, weekly look-ahead schedules, material submittals, and recovery strategies if needed. Accountability is the key to effective subcontractor and supplier management, and it will be perfectly clear that subcontractors and suppliers will be held accountable for all aspects of their work from quality to schedule.

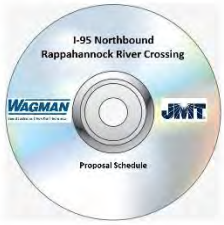
Schedule Recovery

Unexpected issues and unforeseen conditions are a possibility during the construction process. The Wagman Team includes many experienced and well-respected members in the DB field with the ability to recognize and react to any issues that may arise. We will aggressively manage the project and, if needed, mitigate any issues that affect the construction schedule. If necessary, a schedule recovery strategy will be developed, immediately implemented, and closely monitored until the schedule is recovered. Should schedule recovery be required, Wagman has two Field Service Centers (FSC) in close proximity to this Project. We have an equipment fleet valued at over $30 million and over 500 construction professionals. Therefore, Wagman's resources can be quickly mobilized to recover the schedule.

> The Wagman Team in partnership with VDOT will aggressively manage the project and, mitigate any issues that affect the construction schedule.

4.6.3 Proposal Schedule in electronic format (CD-ROM)

The Wagman Team has provided a copy of the Proposal Schedule and narrative in PDF format as well as a back- up copy of the Proposal Schedule's source document in XER format on a CD-ROM.



Appendix

WAGMAN | JMT
A DESIGN-BUILD TEAM

Section 4.2.1 Change in Organizational Chart Approval Letter/Email

WAGMAN JMT
A DESIGN-BUILD TEAM

WAGMAN

General Construction | Heavy Civil | Geotechnical

Wagman Heavy Civil, Inc.
26000 Simpson Road
North Dinwiddie, VA 23803

January 10, 2020

Mr. Suril R. Shah, P.E., DBIA
Alternative Project Delivery Division
Virginia Department of Transportation
1401 East Broad Street
Annex Building, 5th Floor
Richmond, VA 23219

Project: I-95 Northbound Rappahannock River Crossing Project,
Project No. 0095-111-270
Contract ID# C00105510DB106

Subject: Changes to SOQ Organizational Chart

Mr. Shah:

Wagman Heavy Civil would like to make the following changes to our Organizational Chart for the above-referenced project:

Project Engineer: Berkley Hawkins is no longer employed by Wagman Heavy Civil. We desire to replace him with Randy Sprinkle (brief resume attached).

Lead Roadway QA Inspector: Due to workload changes, Quinn Consulting Services would like to replace Noah Pate with Omar Sylla (brief resume attached).

Lead Bridge QA Inspector: Due to workload changes, Quinn Consulting Services would like to replace Chris Goss with Syd Tiffany (brief resume attached).

None of these changes affect Key Personnel positions. Wagman believes that these substitutions are equal or better than those originally shown. Please contact me if additional information or clarification is required concerning any of the items above.

Sincerely,
Wagman Heavy Civil, Inc.

Glen K. Mays

Glen K. Mays, DBIA
Design Build Project Manager
Vice President/General Manager

Munch, Meredith

From: Glen K. Mays <gkmays@wagman.com>
Sent: Wednesday, January 15, 2020 8:29 AM
To: Michael P. Mansfield <mpmansfield@wagman.com>; Ryan Tibbs <rtibbs@wagman.com>; Jerry T. Whitlock <jtwhitlock@wagman.com>; Greg M. Andricos <gmandricos@wagman.com>; Hayzlett, Rodney <RHayzlett@jmt.com>; Curtis, Brian <BCurtis@jmt.com>; Phaup, Trip <TPhaup@jmt.com>
Subject: [EXTERNAL] Fwd: I-95 NB Rappahannock - Changes to Org Chart

Team,

See email below regarding position change approvals for the I-95 NB Rappahannock Project. We need to make sure the changes are made in the Organizational Chart.

Thanks,

Glen

Sent from my iPhone

Begin forwarded message:

> **From:** "Stevenson, Bryan" <bryan.stevenson@vdot.virginia.gov>
> **Date:** January 15, 2020 at 7:58:50 AM EST
> **To:** "Glen K. Mays" <gkmays@wagman.com>
> **Cc:** "Shah, Suril" <suril.shah@vdot.virginia.gov>
> **Subject: Re: I-95 NB Rappahannock - Changes to Org Chart**
>
> Mr. Mays,
>
> VDOT has reviewed and approved your request to replace the following non-key personnel on your team:
>
> **Project Engineer (Wagman)**- Randy Sprinkle for Berkley Hawkins. Berkley Hawkins is no longer employed by Wagman Heavy Civil
>
> **Lead QA Inspector (Quinn)**- Omar Sylla for Noah Pate
>
> **Lead Bridge QA Inspector (Quinn)**- Syd Tiffany for Syd Gross
>
> Please note the requirements related to changes in the organizational chart and narrative as outlined in RFP Part 1, Section 4.2.
>
> Sincerely,
>
> Bryan Stevenson
>
> **Bryan W. Stevenson, P.E., DBIA**
> Senior Project Delivery Engineer

VDOT – Alternative Project Delivery Division
Bryan.Stevenson@VDOT.virginia.gov
Phone: (804) 786-6929

On Fri, Jan 10, 2020 at 4:06 PM Glen K. Mays <gkmays@wagman.com> wrote:

Suril,

Wagman requests to make changes to the Organizational Chart previously submitted with the SOQ. The attached letter provides an explanation for the requested changes. Please consider approval of the changes and respond accordingly. If VDOT approves the changes, we will revise the Org Chart with the submittal of the Technical Proposal.

Thank you,

Glen K. Mays, DBIA

Vice President/General Manager

Wagman Heavy Civil

Wagman Heavy Civil

General Construction | Heavy Civil | Geotechnical

26000 Simpson Road | Dinwiddie, VA 23803-8943

T 804.631.0000 | M 804.481.0174 | F 804.733.6281

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Section 4.4.4

Quality Control/Quality Assurance

WAGMAN | JMT

A DESIGN-BUILD TEAM

Introduction

The I-95 Northbound Rappahannock River Crossing Project will be constructed with a solid commitment to meet the specified quality requirements of VDOT. Our past experience on design-build projects has led to the development of a proven Construction QA/QC program that provides complete and comprehensive procedures which address all phases of project process from construction to final acceptance. This QA/QC program has been customized to incorporate all the requirements of VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design Build & Public-Private Transportation Act Projects (July 2018)* (hereafter VDOT's Minimum QA/QC Requirements Manual).

Wagman believes in a total quality assurance philosophy and that project success is obtained through quality and safety. Where traditional quality management is a results-oriented approach, Wagman goes more in depth and practices a process-oriented method where quality is integrated at every stage and level. This is a continuous process that begins in design and continues through construction to acceptance.

The following highlights some of the benefits provided by our Integrated Quality Program.

Benefits Provided by Our Integrated Quality Program
• The Team will implement a fully integrated Quality Program on this project similar to that which was recognized by VDOT with a CQIP score of 96.36 on the I-95 SB RRC project. However, the program for this project will be modified as required to fully comply with VDOT's 2018 QA/QC requirements.
• Our QAM, Scott Shropshire presently serves in the same role for I-95 SB RRC and is familiar with specific elements (soil with high mica content, acid-sulfate soils, protection and integrity of underdrain systems, ensuring proper rebar cover, etc.) that may present quality risks and has systems in place to ensure full compliance and conformance for these and other at risk elements.
• The success of our Integrated Quality Program will be founded on the real time connectivity Wagman and JMT extend to independent Construction QA, QC, and our partners with VDOT that provides integrated use of PlanGrid by design, construction, QA, QC, and VDOT, greatly enhancing project collaboration, communication, and efficiency, as successfully demonstrated on the I-95 SB RRC project.
• QAM has open lines of communication with VDOT, construction personnel, and design personnel.
• QA and QC staff share field office space which leads to collaboration and constant communication.
• The Team will provide QA & QC with a GPS survey instrument loaded with the most current design model from JMT in order to field verify construction in real time independent of Wagman field staff, as successfully demonstrated on the I-95 SB RRC project.
• The QAM will hold formal QA/QC meetings at the project field office at least weekly to review: look-ahead schedules, staffing assignments, preparatory meetings, QA/QC logs, inspection reports, the quantity ledger book and openly discuss any issues or concerns related to quality.
• Wagman empowers all team members with "Stop Work Authority" and instructs them to halt any work activity that is not in accordance with the approved work plan and requirements outlined in the preparatory meeting. Additionally, this authority extends to any activity that has the potential to compromise quality or present danger to the environment.
• The team will employ several best practices related to environmental compliance focus on controlling erosion and sediment including: employment of a full time E&S manager with RLD & ESCCC certification, requiring all Wagman civil supervisors to maintain RLD & ESCCC certification, station a hydro seeder and

mulcher on the project to facilitate immediate stabilization, require mandatory environmental compliance training, and having the Designer participate in project ESC inspections.

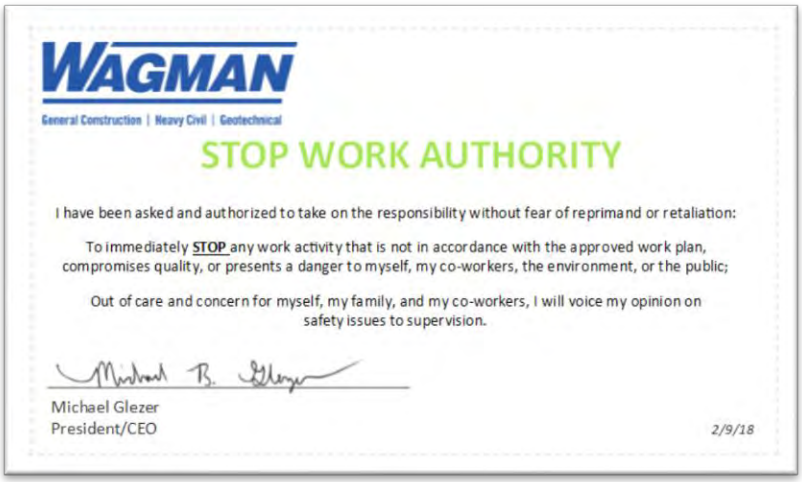
- MOT Inspections will occur every working day and will be documented in the project files. Team members will be on-call 24 hours a day, seven days a week to assist with any traffic related issues within the project limits.
- All new MOT patterns will be documented via video immediately after installation and verified for conformity and operational acceptance. All MOT will be documented via video at the end of the work week.

Project QA and QC Structure

The QA and QC functions of the project organizations are functionally integrated although contractually separate. Wagman, as the Design-Builder and the entity ultimately responsible for the delivery of a quality project, has retained the services of well-respected quality management firms for the execution of this project. Construction QC will be led by CES Consulting, LLC (CES). Wagman, in conjunction with CES, will be responsible for the implementation of the construction QC program. The Quality Control Inspection function, on select items of work such as asphalt, may be performed by the Design-Build Contractor or Subcontractor as pre-approved by the Quality Assurance Manager and VDOT. All key personnel performing QA or QC functions will be exclusively designated as such and will not be assigned to perform conflicting duties or production work.

Construction QA will be performed by Quinn Consulting Services, Inc. (Quinn). Independent of Wagman and CES, Quinn will provide QA through daily monitoring and scheduled inspections to verify the effectiveness of the QC program and assure that the quality and contract requirements are met by Wagman and their subcontractors. Quinn has assigned Scott Shropshire, P.E., CCM as the Quality Assurance Manager (QAM) for this project. The QAM will be responsible for the implementation of the QA plan which shall ensure and document that the contractor's QC processes and procedures are working effectively and that the resultant construction complies with the quality requirements established by the contract.

In addition to the retained consultants, every Wagman Supervisor has QC responsibility and if they encounter a situation that cannot be resolved, Wagman will initiate the NCR process on their own if necessary. Wagman employees are absolutely critical to getting the job built on time and within specifications, and to Wagman's own internal quality standards. Wagman extends "Stop Work Authority" to every employee of the company to stop any work activity due to a potential quality or safety issue.



WAGMAN
General Construction | Heavy Civil | Geotechnical

STOP WORK AUTHORITY

I have been asked and authorized to take on the responsibility without fear of reprimand or retaliation:

To immediately STOP any work activity that is not in accordance with the approved work plan, compromises quality, or presents a danger to myself, my co-workers, the environment, or the public;

Out of care and concern for myself, my family, and my co-workers, I will voice my opinion on safety issues to supervision.

Michael Glezer
President/CEO
2/9/18

QA & QC Specific Organizational Chart

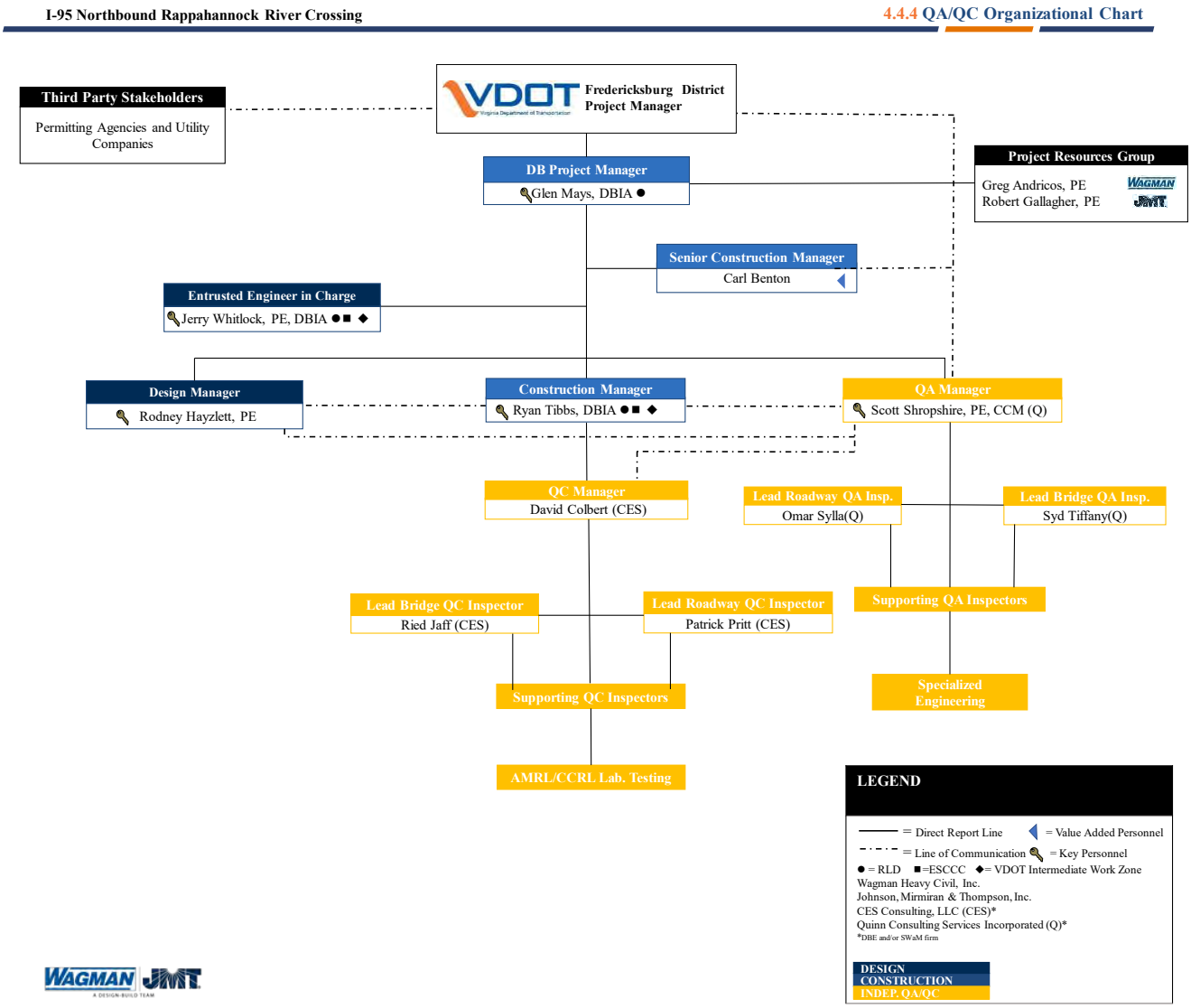


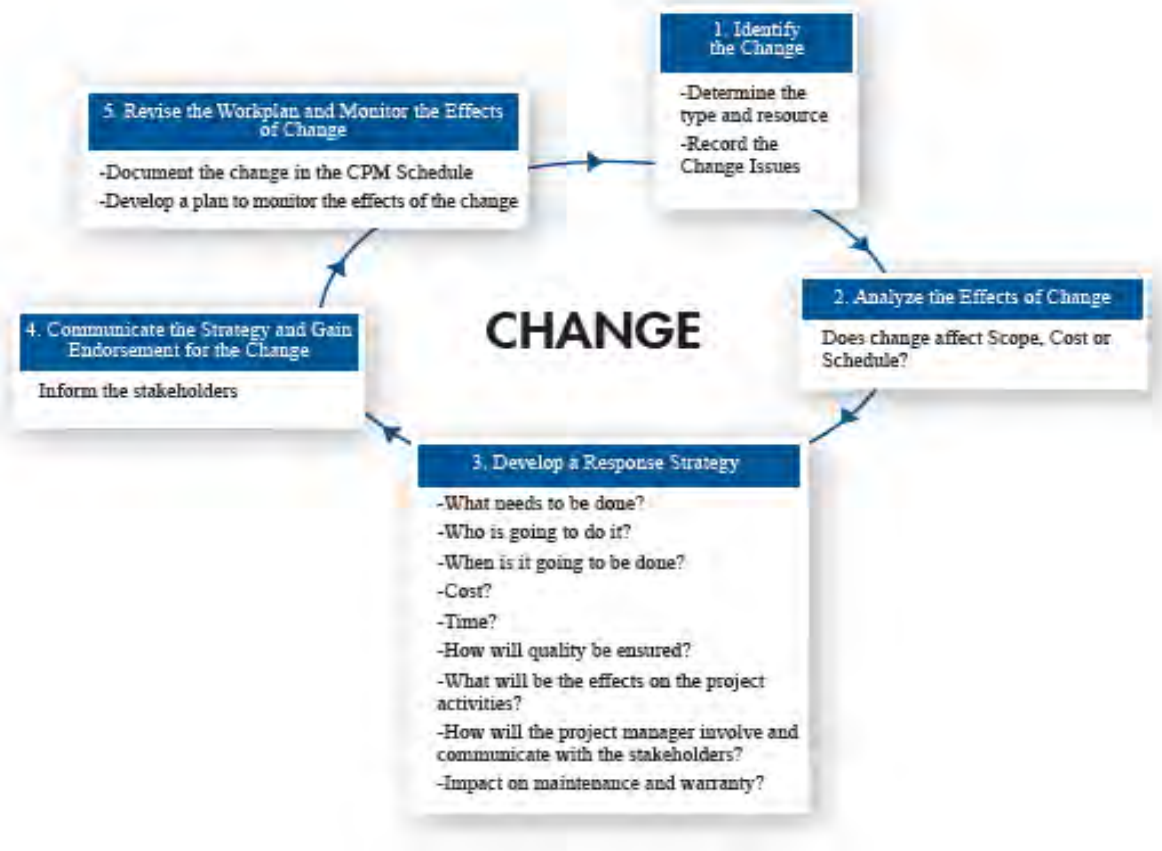
Figure 1: QA/QC Specific Organizational Chart

The QA/QC organizational chart for this project is shown in Figure 1. The Design-Build Project Manager (DBPM) will ultimately be responsible for the Quality of the Project. Reporting to the DBPM will be the Quality Assurance Manager (QAM), Construction Manager (CM), Entrusted Engineer in Charge (EIC) and the Design Manager (DM). The individuals identified below will have sufficient authority to identify quality problems, and to initiate, recommend, and verify implementation of solutions. The QAM will have full authority to initiate a work stoppage and be able to recommend to VDOT to withhold payment for design and/or construction activities that are not acceptable. The QAM has lines of communication to the VDOT PM, CM, DM, EIC, Senior Construction Manager, and the QCM.

Change Management

A project of this size will require changes either during design or during construction. This is all part of the teaming process and is different from the traditional engineer/contractor relationship. The design build process is one where the engineer and contractor are partnered to produce the most cost-effective product possible, while still meeting the goals and expectations of VDOT. Accordingly, all team members will need to be flexible when a change, including but not limited to, value engineering proposals are brought to the table for discussion.

Each team member needs to listen and evaluate the idea with life cycle cost including operation and maintenance, safety, client expectations, and quality in mind. In every case, when a decision is about to be made, the Design-Build Project Manager, Design Manager, Quality Assurance Manager, Construction Manager, and VDOT will all be part of the decision process, as appropriate. Below are guidelines that will be followed to manage the change:



Quality Assurance Approach & Staffing

Quality Assurance is the overall process performed independently of the Design-Builder for the purpose of determining the conformance of the work by examining the QC data and/or providing objective evidence (independent sampling and testing) to verify the contractor's quality control sampling and testing. Clear and constant communication between team members is a core requirement for a strong QA program. The Design-Build Team plans to communicate via the following methods:

- QA/QC Plan
- Project Meetings
- Electronic Document Management System (PlanGrid)
- Partnering

QA/QC Plan

The QA/QC Plan will communicate expectations of all staff associated with the project. All the elements of this plan will be dynamic and reviewed on a continual basis to make changes as required and agreed to amongst the team members and VDOT. As additional design and construction details are created Quinn will, in cooperation with Wagman, CES, and JMT, update the QA/QC Plan. When QA/QC Plan revisions are made, the QAM will be responsible for their distribution. Additional information and/or proposed changes to the QA/QC plan shall be submitted by the QAM prior to the applicable feature of work start date. Changes will be made to the QA/QC plan as required to attain the standards of quality required by the contract. All updates/changes will be tracked and recorded in "Addendum List" maintained within the plan.

Project Meetings

Monthly Progress Meetings, which will include as needed or required, the DBPM, QAM, Entrusted Engineer In Charge, Design Manager, Construction Manager, Utility Coordinator, VDOT PM, project inspectors, subcontractors, and other key personnel as required, will be held to discuss progress of the work and if there are any issues or concerns. Coordination of witness and hold points will take place.

These meetings will be used as "Look Ahead" opportunities to address upcoming activities, coordinate resources and evaluate constructability concerns with a focus on developing proactive solutions to help maintain a sustainable progress.

The QA/QC staff will be a part of these meetings to ensure an understanding of what work items are upcoming, in order to ensure proper inspection and testing is performed. The meeting will include, but is not limited to, items such as site safety, construction submittal status, any outstanding quality issues or NCR's, public involvement, utility coordination, permitting and design changes. Subcontractors will be included in progress meetings as appropriate to ensure work items are tracking on schedule.

Weekly Quality Meetings will take place during construction and include the DBPM, QAM, EIC, CM, VDOT PM, project inspectors, subcontractors, and other key personnel as required. These meetings will be held to discuss the quality of the work and if there are any issues or concerns. Typical agenda items are the "three-week look ahead" schedule, status of NCR's, RFI's, testing, inspections, required approvals, coordination of witness and hold points and scheduling required preparatory meetings.

Preparatory Inspection Meetings (HOLD POINTS) will be held prior to the start of definable features of work to ensure involved personnel have a thorough understanding of the upcoming work activity. These meetings will be scheduled and conducted by the QAM. These meetings will provide coordination between the Design-Builder's production, QC, and QA personnel. Discussions will include what work is to be performed, and by whom, where, when, and how the work will be performed. These meetings are to ensure the same understanding of the design intent and to confirm each team member has the appropriate set of plans, specifications, manufacturer or vendor requirements, special details, submittals, and to confirm testing and inspection requirements per the approved QA/QC plan.

Weekly QA/QC Staff Meetings will commence once construction starts and will include the CM or representative, QAM, Quality Control Manager (QCM), EIC, and their key staff members. It will be held to ensure each individual understands their responsibilities and that all the work is covered and documented. Discussions will be held at these meetings regarding upcoming work, testing and inspection requirements for upcoming work, any quality issues, and any outstanding deficiencies. Daily communication with QCM will occur to review scheduled activities and to coordinate QA/QC activities. In addition to daily communication with the QCM, the CM or a designee will issue a daily schedule of the day's upcoming activities to the project staff, including VDOT personnel. The QCM will identify to the QAM which inspectors or testers will be assigned to the different ongoing construction operations.

Electronic Document Management System

A collaborative electronic document management system (PlanGrid) will track work and items, such as submittals and project issues. It will track the status of RFI's, NCR's and punch lists. All project documentation will be maintained within PlanGrid, including any QA/QC reports and inspections, RFI's, submittals, drawing changes, etc.

Partnering

Partnering is the concept of VDOT working together with the Design-Builder in the spirit of cooperation and trust to ensure open communication and to resolve issues at the lowest level possible in the quickest time frame. To accomplish this, a timeline and process for making decisions and managing communications will be established as part of our partnering sessions. These processes are to ensure that required information is provided in a timely and efficient manner. The process will include the guidelines for communications generated by the Design-Build team and VDOT.

To implement the QA/QC Plan, Quinn Consulting Services will provide experienced staff as detailed below:

Quality Assurance Manager

The Quality Assurance Manager (QAM), Mr. Scott Shropshire, P.E., CCM with Quinn Consulting Services, Inc. is independent of the Designer, Quality Control, and the Contractor, and is responsible for providing quality assurance of the work and monitoring conformance with the Contract Documents. As QAM, Scott is responsible for the overall development and adherence to the QA/QC Plan. As part of this role, Scott and his designated full time QA field representatives are responsible for monitoring the performance of the required QC inspections and materials tests performed by the Design-Builder's QC staff including but not limited to: nuclear densities on soils and aggregates; concrete testing, and asphalt bulk specific gravities, as well as the other inspections and tests as prescribed in Appendix 3 Table A-2 of VDOT's Minimum Requirements for QA/QC on Design-Build Projects.

The QAM will audit the inspection reports test results to verify that the work is acceptable and in conformance with Contract Documents. He will also compare the results of the QC, QA, and OIA tests to ensure that the results are within the tolerances found in VDOT's Minimum QA/QC Requirements Manual. At a minimum, this audit will take place each month prior to VDOT's review and approval of the monthly payment application. If the QAM identifies that the comparison of the results of the QC, QA, and OIA tests are outside the tolerances set forth in VDOT's Minimum QA/QC Requirements Manual, or if the QAM identifies a trend in reported deficiencies, the QAM may increase the QA and QC testing frequencies for the affected work activities beyond the minimums to ensure the work product meets desired quality standards.

The QAM will conduct preparatory inspection meetings prior to the start of any new work. Preparatory meetings will be classified as hold points in the schedule. During these meetings, the QAM will meet with VDOT representative(s), DBPM, CM, Field Superintendents, safety personnel, subcontractors, and QC personnel involved in the work to discuss and develop a clear understanding of the plan of operations, testing procedures, and acceptance requirements. Additionally, other project stakeholders will be invited and encouraged to attend and participate, as these meetings are intended to facilitate a dialogue between all project stakeholders where items such as the applicable contract drawings, specifications, special provisions, material submittals, inspection and testing requirements, environmental concerns, public communications, safety issues, designer's intent, and contractor's approach are discussed. Also, at these meetings activity specific testing plans will be reviewed and the proper QC inspection checklist (developed by the QCM and reviewed by the QAM) to be used for monitoring the work will be identified and distributed to meeting attendees. Another objective of the Preparatory Inspection Meetings is to identify project witness and hold points. Hold points are defined as activities that must be performed before a given activity can proceed to the next step. A good example of a hold point would be performing a satisfactory dry run of the screed before a bridge deck pour. Witness points are defined as inspection activities that are performed where VDOT is notified in advance of their schedule. An example would be proof rolling a sub grade. In this case, VDOT would be notified by Wagman of the time and place of the proof roll and VDOT decides if they would like to have a representative attend the inspection. Witness and hold points will be identified at each preparatory meeting and their schedules will be distributed in conjunction with the Contractor's weekly project look ahead schedules. It will be the responsibility of the QAM to finalize preparatory meeting minutes and distribute them to all attendees and other project stakeholders that could not be in attendance.

Anticipated Preparatory Meetings Include:

- Maintenance of Traffic
- Erosion & Sediment Control
- Clearing & Grubbing
- Excavation & Embankment
- Drainage / Underdrain
- Subbase / Aggregate Base
- Asphalt (Temporary)
- Demo Existing Structures
- Pavement Markings (Temporary)

- Abutment Excavation
- Substructure / Foundations
- Pile Driving / Drilled Shafts (as applicable)
- Bridge Piers
- MSE Walls
- Bridge Abutments / Backwalls
- Superstructure / Bearings / Girders
- Superstructure / Decks / Parapets
- Railing / Fencing
- Asphalt (Permanent)
- Pavement Markings (Permanent)
- Final Seeding / Landscaping / Slope Stabilization
- Guard Rail
- Signage / Signals
- Soundwalls

In addition, witness points will be identified during the various Preparatory Meetings but are expected to include:

- Subgrade Proof Rolls
- Concrete Testing / Rebar Placement
- Geotechnical Inspections
- Subbase Proof Rolls
- Marking Project LOD
- Video of Storm Drains
- Undercuts
- Test Piles
- High Strength Bolt Rotational Capacity Testing
- Video of Underdrains
- Overhead Sign Erection

The QAM will also manage and oversee the Non-Compliance Report (NCR) process. He will work closely with both Wagman and VDOT personnel to promptly identify, prepare, and distribute the necessary project Non-Compliance Reports (NCR's) and document agreeable resolutions to each respective NCR. The QAM may also direct Wagman to perform such corrective actions as may be required to bring non-compliant work into compliance. In addition, the QAM will work with the QC team to monitor and track project deficiencies for resolution during the project or incorporation into the project punch list. The overarching objective is to perform both QA and QC in such a manner that should an element of work be found deficient with the contract requirements, corrective action(s) can be taken at the point in time where the element can be brought into compliance without the need for rework or the possible issuance of an Non-conformance Report (NCR). The QAM and the QA team, when notified by Wagman that the work is complete, will coordinate the walk throughs and development of the final punch list with the Department and document the close out of each punch list item. Deficiencies, NCR's, and other project issues will be tracked in the PlanGrid software system and recorded data will be reviewed by the quality team at each weekly progress meeting. The QAM reports directly to the DBPM and has the authority to stop any work not being performed in accordance with the contract requirements or lacking the QA/QC documentation necessary to prove that the work meets the contract requirements.

The QAM and the QA team will also be responsible for oversight of the C-25 materials approval process and entering data provided by Wagman into the project Materials Notebook. On a monthly basis the QAM will audit the Material Notebook prior to approving the monthly estimate and also check the estimate for accuracy and complete back up i.e. QA/QC IDR's materials testing reports, etc., while attaching a list of any open Non-Compliance Reports for VDOT reference.
The QAM will be supported by a QA team of Lead QA Inspectors, Office Engineer, and QA Inspectors/Materials Technicians as appropriate to ensure coverage of construction activities.

Lead QA Inspectors

Our approach to QA inspection on this project will consist of two (2) Lead QA inspectors who will be onsite full-time during construction and will report directly to the Quality Assurance Manager (QAM). One Lead QA inspector will oversee all Bridge/Structure elements of the project while the other will oversee all Roadway elements of the project. The use of two lead inspectors allows for a more in depth understanding of the specific elements that the lead inspectors will be covering and allows them to spend more of their time physically observing construction (including both QA and QC inspection) activities as they are being performed. Furthermore, this approach assists in ensuring inspection, testing and correction of any deficiencies or non-conforming work are being performed in accordance with the contract requirements. The Lead QA inspectors placed on this project are experienced in the inspection of all facets of the work to which they are assigned and have previously worked in the Fredericksburg District, and are familiar with VDOT's expectations for construction quality inspection in the District. Lead QA inspectors will also be VDEQ certified ESC inspectors with experience in performing C-107 Part 1 inspections and monitoring the Project's compliance with the SWPPP and the VPDES Construction Permit. Lead QA inspectors will also manage any other QA inspectors or technicians required to ensure, at any time, all construction operations and QC activities are being properly monitored and conducted in accordance with the Contract Requirements.

QA Office Engineer

A QA Office Engineer will be assigned to the project and will be responsible for maintaining the project Materials Book which includes the project Source of Materials, Materials Book quantity entries, materials testing results, Buy America Certifications, and materials invoice and ticket compilations. In addition to working for the QAM on the day-to-day Materials Book entries, the Office Engineer will assist with checking QA and QC IDR's and laboratory testing reports. Also, the Office Engineer will be available to assist with field inspections when needed due to high volume workdays or when night or weekend inspections are required. Having an Office Engineer dedicated to the project allows the Lead and Regular QA inspectors to spend more time in the field monitoring construction and QC operations.

QA Inspectors/Testing Technicians

QA Inspectors and Technicians will be added to the project when the Lead QA structural and/or roadway inspectors need assistance in covering Wagman's scheduled construction activities in accordance with the VDOT Minimum Requirements for Design-Build & PPTA Projects Manual. These inspectors and technicians will hold certifications acceptable to VDOT for the materials they are required to inspect and test in accordance with VDOT's Inspection Manual and minimum requirements.

QA Laboratory

Quinn will utilize a QA Laboratory that is accredited per the requirements of the VDOT Design-Build Manual and results provided by the QA Laboratory will be compared to QC Laboratory results and any testing comparison discrepancies will be addressed by the QAM and the project Quality Team.

The QA and QC for design aspects of the project will be directed and performed by JMT and are not considered to be formally within Quinn's scope of work; however, Quinn will coordinate with JMT for the resolution of design related construction issues and will work with JMT to resolve any such problems by documenting their nature and scope. Quinn will also collaborate with JMT during the design phase to verify that JMT is adhering to the protocols, including internal QA and QC, as established in their approved Design QA/QC plan included herein.

Quality Control Approach & Staffing

Quality Control is performed by the Design-Builder to assess and adjust design, production, and construction processes to ensure conformance with contract requirements and to control the level of quality being produced on the Project. The purpose of QC is to measure those quality characteristics and to inspect those activities that affect the production at a time when corrective action can be taken to substantially decrease the likelihood that appreciable non-conforming material will be incorporated in the Project. Wagman will employ the following personnel to carry out this process:

Construction Manager

The Construction Manager (CM) is Ryan Tibbs with Wagman. The CM will manage the Construction Quality Control program and will coordinate with the QAM for the preparatory, intermediate, completion, and punch out inspections. He will also meet with the DBPM, QAM, and QCM to discuss any quality issues and implement any recommendations to correct the issues. He will attend all meetings with the DBPM and the QAM, if necessary, to resolve any and all issues. The CM will ensure that all project daily reports and other requested information is sent to the QAM or his designated representative for review. The CM will ensure that all QC documentation is furnished to QA within 24 hours of receiving the information or the next business day.

Quality Control Manager

The Quality Control Manager (QCM) is Mr. David Colbert with CES Consulting, LLC. The QCM shall establish and maintain a comprehensive system for the project documentation at the Project Field Office that will organize and track all Construction QA, QC, Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) documentation. All documentation shall be adequately identified and cross-referenced to support a field audit by the QAM and VDOT during the life of the Project as well as final audit after project completion. The QAM shall periodically audit the project records for QC testing and inspection QA/QC Plan compliance and report any deficiencies to the Contractor and VDOT.

The Construction Quality Control Manager (QCM) will manage the daily QC inspections and materials testing of construction activities as directed by the Construction Superintendent and will report directly to the CM. The QCM will coordinate daily with the CM in reviewing the project schedule and determining the requirements of the QC Team to adequately and properly monitor construction activities. The QCM and the QC Team are responsible for the inspection of the construction activities and all QC sampling, testing and analysis of materials on the project to ensure that construction quality is verified at frequencies required by the VDOT Construction Manual, the Materials Manual of Instructions, and VDOT's Minimum Requirements for Quality Control on Design Build and Public-Private Transportation Act Projects dated January 2012. The QCM ensures that the QC materials sampling and testing is consistent with the QA/QC Plan. The QCM will coordinate with and manage the QC on site field testing technicians and the QCM will also coordinate with the QC Lab for materials sampling and pick up. Furthermore, the QCM will coordinate with the QC Team to continuously monitor and ensure compliance with erosion and sediment control, environmental permit obligations, and temporary traffic control procedures.

Lead QC Inspectors

A lead QC inspector will each be assigned to oversee all Roadway elements and Bridge elements. The Lead QC inspector will be onsite full-time while work is occurring on the respective work elements and will report directly to the QCM. One lead QC inspector will oversee all Bridge elements of the project while the other will oversee all Roadway elements of the project.

Supporting QC Inspectors

QC Inspectors and Technicians will be added to the project when the Lead QC bridge and roadway inspector need assistance in covering Wagman activities in accordance with the VDOT Design-Build Manual. These inspectors and technicians will hold certifications acceptable to VDOT for the materials they are required to inspect and test.

CES Consulting, LLC will provide QC inspectors and manage subcontractor technicians to implement the approved QC plan. These project inspectors shall be VDOT certified in accordance with the operation that they are tasked to inspect. These certifications will consist of Asphalt, Concrete, Soils and Aggregates, Pavement Markings, GRIT, and Nuclear Safety. Additionally, the project's inspectors will be Department of Environmental Quality (DEQ) certified for inspection of sediment and erosion control measures and hold Intermediate Level Work zone certifications when inspecting MOT devices and traffic control set-ups.

All QC staff either inspecting work or performing material testing will be required to fill out an Inspector Daily Report (IDR) on a daily basis. These electronic formatted diaries will also include attached copies of QC materials tests completed for the day's activities. Signed copies of the IDR's will be provided to the QCM

for review and approval on a daily basis. The QCM will provide a Daily Diary which summarizes all IDR's for that day's work activities. Copies of all signed Daily Diaries, IDR's, and testing reports will be kept on PlanGrid, and the Construction Manager, QA Manager and VDOT notified of their availability. The original documents will be kept onsite until uploaded to PlanGrid. A weekly report will be produced by the QCM that contains summaries of tests, material placement, and actions taken for failing materials, Non-Conformance Reports, MOT inspections, and environmental issues.

In addition to ensuring compliance with good practice and quality workmanship, Wagman shall generate a Work and Operations Plan for each major work activity, which will outline QC testing that is required for that activity. A sample work plan is shown in Appendix F. Utilization of the Work and Operations Plan will ensure that adequate testing resources are dedicated and properly scheduled for the duration of the work activity. Inspection activities will be scheduled and coordinated by the QCM who will coordinate with the Construction Manager to identify QC personnel requirements and schedule QC tests and inspections on a daily basis.

QCM and QC staff duties shall include, but not limited to:

- Develop, utilize, and maintain Daily Checklists for work activities.
- Provide scheduling and coordination of all QC testing and retesting.
- Ensure testing frequency meets or exceeds the minimum frequency shown in VDOT's Minimum Requirements for Quality Control on Design Build and Public-Private Transportation Act Projects dated January 2018.
- Receive and check material certifications and samples for conformance.
- Inspect delivered materials and equipment.
- Perform grade checks for subgrade, subbase, and cement treated aggregate lifts as material is placed and compacted. Depth testing of asphalt will be performed by supervised subcontract technicians core drilling of the compacted lift and compared to plan requirements.
- Inspect work in progress and in place.
- Witness field-testing of construction materials.
- Observe underdrain camera inspections for longitudinal runs and outlet pipes. Video logs will be furnished to the QCM by the Contractor for review and maintained for all inspections.
- Observe storm drain camera inspections for longitudinal runs and outlet pipes. Video logs will be furnished to the QCM by the Contractor for review and maintained for all inspections.
- Perform control tests when methods or equipment of the testing agency seem to be in error by replacing malfunctioning equipment or using alternate testing methods.
- Verify that results of tests conform to the Contract Documents.
- Immediately notify the QAM, EIC, Design Build Project Manager (DBPM), and Construction Manager if materials and/or workmanship do not comply with the Contract Documents. Design-Builder will be notified in writing when these deficiencies are not corrected in a timely and appropriate manner.
- Provide off-site testing for borrow materials.
- Utilize Form TL-60 to verify roller pattern and control strips.
- Utilize Form TL-102 from aggregate suppliers.

Perform post installation pipe inspection in accordance with VDOT Drainage Manual.

The QC Team will perform inspections in four distinct phases: Preparatory, Intermediate, Completion, and Punch-out. Inspections on the project will be scheduled through daily and weekly communications of schedules that include witness and hold points for each activity. A log summarizing various witness and hold points identified at the activity preparatory meetings will be maintained and distributed by the QA team and the QC team will be responsible for witness and hold points schedule notifications on a day to day basis.

QA/QC Staff Histogram

(Based on monthly averages from the construction schedule's early start dates)

							2021												2022												2023												2024							
Description	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Bridge Crews				0	0	1	1	1	1	2	2	2	5	6	6	5	6	6	5	4	4	3	2	3	3	2	3	3	5	5	5	3	3	2	2	1	0	0	0	0	0	0	0	0	0	0	0			
Roadway Crews				2	6	6	6	4	5	4	4	3	2	4	6	8	14	14	6	2	10	11	12	10	11	8	6	5	4	2	1	1	1	3	6	4	3	2	1	1	1	1	1	0	1	2	1			
QA Staffing Plan																																																	
QA Manager				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Lead Bridge Inspector				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0			
Lead Roadway Inspector				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Regular Inspector/Technicians				0	1	1	1	1	1	1	1	0	1	2	2	3	5	5	2	1	4	3	3	3	3	2	1	1	2	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0			
Office Engineer				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
QC Staffing Plan																																																	
QC Manager				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Lead Bridge Inspector				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0			
Lead Roadway Inspector				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Regular Inspector/Technicians				0	2	2	3	3	3	3	3	2	2	5	6	6	9	9	5	2	6	6	6	5	6	5	4	4	4	2	2	1	1	2	4	2	1	1	1	1	1	1	1	1	1	1	1			

The above QA/QC Staffing Plan histogram is based on monthly averages from the construction schedule's early start dates.

The QA staff will consist of:

- **Quality Assurance Manager – Scott Shropshire, P.E., CCM** – 20 to 30 hours per week depending on scheduled activities.
- **Lead QA Bridge/Structure Inspector – Syd Tiffany** – Full time during structural construction activities. Anticipated hours are 40 to 50 hours per week.
- **Lead QA Roadway Inspector – Omar Sylla** – Full time during roadway construction activities. Anticipated hours are 40 to 50 hours per week.
- **Regular QA Inspectors and Technicians** – The Lead QA Inspectors will be assisted and supplemented by additional inspectors and technicians as needed.
- **Office Engineer – Mark McMiller** – Anticipated hours are 40 hours per week.

The QC staff will consist of:

- **Quality Control Manager – David Colbert** – Full time during construction activities. Anticipated hours are 40-50 hours per week.
- **Lead QC Bridge Inspector – Ried Jaff** – Full time during structural construction activities. Anticipated hours are 40 to 50 hours per week.
- **Lead QC Roadway Inspector – Patrick Pritt** – Full time during roadway construction activities. Anticipated hours are 40 to 50 hours per week.
- **Regular QC Inspectors and Technicians** – The Lead QC Inspectors will be assisted and supplemented by additional inspectors and technicians as needed.

Quality Assurance/Quality Control Pledge

The Wagman Team has developed and refined numerous best practices related to QA/QC in our delivery of VDOT DB projects in multiple districts. These practices have recently been enhanced to satisfy the expectations communicated to our overall industry by VDOT Senior Management. This excellent performance was recently validated by the VDOT OIA initial QCIP audit of I-95 SB CD Lanes Project where the Design Builder (Wagman) obtained a score of 96.36. The following practices will be implemented on this project:

- All key and value added staff will remain committed to the project and not delegate their duties.
- The CPM schedule will include separate activities for constructability and QA/QC reviews by the Wagman Team as well as VDOT and agency reviews. The EIC will ensure these reviews occur and that the design submittals will be stamped after review and prior to formal submission.
- Written work plans are developed for construction activities with noted witness and hold points for safety, QA, and QC inspections. These written plans will be reviewed and incorporated into the formal Preparatory Meetings.
- Proactive QA/QC inspections with vigilant written documentation (inspection logs, Deficiencies, and NCRs) of any issues with potential to affect quality or safety for tracking and follow through until formal resolution by the EIC and/or Designer/Engineer of Record as required.
- The QAM will hold formal QA/QC meetings at the project field office at least weekly to review look ahead schedules, staffing assignments, preparatory meetings, QA/QC logs, inspection reports, and the quantity ledger book.
- Wagman will extend “Stop Work Authority” to all employees and personnel associated with the project due to potential quality or safety issues.
- Wagman will provide QA/QC staff with a survey rover so they can independently verify layout.
- Contractor QA/QC Plan will be regularly updated and maintained with all proper official documentation.

Attachment 3.6.6

Alternative Technical Concept (ATC) Response Form

ATTACHMENT 3.6.6

ALTERNATIVE TECHNICAL CONCEPT (ATC) RESPONSE FORM

ATC ID NUMBER: ATC 1

ATC NAME-DESCRIPTION: Earthen Berm for Noise Abatement

OFFEROR: Wagman/ JMT

DATE ATC SUBMITTED: January 6, 2020

- ■ (A) The proposed ATC is acceptable for inclusion in the Proposal with such conditions, modifications and/or requirements as identified by VDOT in Attachment 1 of this response.
- ☐ (B) The ATC is not acceptable for inclusion in the Proposal.
- ☐ (C) The submittal does not qualify as an ATC but may be included in the Offeror's Proposal because it appears to be within the requirements of the RFP.

Signed: _____ Arel William de|54437 Digitally signed by Arel William de|54437 Date: 2020.01.22 16:48:07-05'00'
William Arel, P.E.

DATE OF ATC RESPONSE: January 22, 2020

ATTACHMENT 3.6.6 (cont.)

ALTERNATIVE TECHNICAL CONCEPT (ATC) RESPONSE FORM

ATC ID NUMBER: ATC 1

ATC NAME-DESCRIPTION: Earthen Berm for Noise Abatement

OFFEROR: Wagman/ JMT

DATE ATC SUBMITTED: January 6, 2020

ATTACHMENT 1

1. The berm as shown in the cross sections provided appears to introduce a Design Waiver relative to the roadside ditch. The ATC 1, if included in the Technical Proposal Conceptual Plan, shall not include a Design Waiver.
2. For the "Noise Barrier C" area, the Price Proposal shall include a breakdown of cost for concrete noise barrier (including assumed length and height) and a separate cost for the earthen berm (including assumed length and height). If the Design-Builder's Final Design Noise Analysis indicate additional or reduced noise abatement as compared to the Draft Final Design Noise Analysis provided in the RFP, then adjustments will be made based on those values. A square foot comparison for the change in quantities for the earthen berm shall not be used.
3. Consistent with RFP Part 1, Section 4.3.1, the location of the berm shall be shown on the Technical Proposal Conceptual Plans.
4. The Design Builder is responsible for mitigating and accounting for any and all ancillary impacts associated with the installation of a berm, including, but not limited to:
    - Public Involvement.
    - ROW Acquisitions.
    - Stabilization requirements associated with the berm.
    - Maintaining positive drainage and meeting all drainage requirements on both sides of the proposed barrier and berm.
    - Meeting Clear Zone requirements.
    - Replacing/relocating any impacted VDOT assets or 3rd party utilities, including sign structures, guardrail, etc.
5. Limited Access Fence shall be evaluated and installed as needed. This shall be accounted for in the Offeror's Proposal Price.

Attachment 3.6.7

List of Approved ATCs Included in Technical Proposal

ATTACHMENT 3.6.7
LIST OF APPROVED ATCs INCLUDED IN TECHNICAL PROPOSAL

OFFEROR:

List all approved ATCs included in the Technical Proposal along with the page number references from Technical Proposal.

ATC ID Number	ATC Name Description	Date ATC Approved	Technical Proposal Reference Page(s) #
ATC 1	Earthen Berm for Noise Abatement	01/22/2020	17 of 90

By signing this document, the Offeror hereby confirms that they are agreeing to all conditions that may have accompanied the ATC approval(s). The Offerors shall make a note of RFP Part 4 Section 2.1.10

"If the Contract Documents incorporate any ATCs and Design-Builder, for whatever reason: (a) does not comply with one or more Department conditions of pre-approval for the ATC; (b) does not obtain required third-party approval for the ATC; or (c) fails to implement the ATC, then Design-Builder shall: (1) provide written notice thereof to Department; and (2) comply with the requirements in the Contract Documents that would have applied in the absence of such ATC. Such compliance shall be without any increase in the Contract Price or extension to the Contract Time(s). For the avoidance of doubt, Design-Builder shall not be entitled to any increase in the Contract Price or extension of the Contract Time(s) as a result of any delay, inability or cost associated with the acquisition of any property that may be required to implement any ATC".

[Signature: Offerors POC or Principal Officer]

Glen K. Mays
[Printed Name]

Vice President / General Manager
[Title]

DATE: February 24, 2020

Attachment 3.7

Acknowledgement of RFP, Revision and/or Addenda

ATTACHMENT 3.7

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00105510DB106

PROJECT NO.: 0095-111-270

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

Acknowledgement shall be made of receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Letter of Submittal submission date shown herein. Failure to include this acknowledgement in the Letter of Submittal may result in the rejection of your proposal.

By signing this Attachment 3.7, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of RFP – September 19, 2019 (Date)
2. Cover letter of RFP Addendum #1 – October 16, 2019 (Date)
3. Cover letter of RFP Addendum #2 – November 8, 2019 (Date)
4. Cover letter of RFP Addendum #3 – November 22, 2019 (Date)
5. Cover letter of RFP Addendum #4 – December 20, 2019 (Date)
6. Cover letter of RFP Addendum #5 – January 17, 2020
7. Cover letter of RFP Addendum #6 – February 6, 2020

SIGNATURE	DATE: 2/25/2020
Glen K. Mays	Vice President/ General Manager
PRINTED NAME	TITLE

Attachment 9.3.1

Proposal Payment Agreement

ATTACHMENT 9.3.1
PROPOSAL PAYMENT AGREEMENT

THIS PROPOSAL PAYMENT AGREEMENT (this "Agreement") is made and entered into as of this 25th day of February, 2020, by and between the Virginia Department of Transportation ("VDOT"), and Wagman Heavy Civil, Inc. ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's May 13, 2019 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-95 Northbound Rappahannock River Crossing, Project No. 0095-111-270** ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

WHEREAS, as part of the procurement process for the Project, Offeror has already provided and/or furnished to VDOT, and may continue to provide and/or furnish to VDOT, certain intellectual property, materials, information and ideas, including, but not limited to, such matters that are: (a) conveyed verbally and in writing during proprietary meetings or interviews; and (b) contained in, related to or associated with Offeror's proposal, including, but not limited to, written correspondence, designs, drawings, plans, exhibits, photographs, reports, printed material, tapes, electronic disks, or other graphic and visual aids (collectively "Offeror's Intellectual Property"); and

WHEREAS, VDOT is willing to provide a payment to Offeror, subject to the express conditions stated in this Agreement, to obtain certain rights in Offeror's Intellectual Property, provided that Offeror submits a proposal that VDOT determines to be responsive to the RFP ("Offeror's Proposal"), and either (a) Offeror is not awarded the Design-Build Contract; or (b) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror; and

WHEREAS, Offeror wishes to receive the payment offered by VDOT, in exchange for granting VDOT the rights set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

1. **VDOT's Rights in Offeror's Intellectual Property**. Offeror hereby conveys to VDOT all rights, title and interest, free and clear of all liens, claims and encumbrances, in Offeror's Intellectual Property, which includes, without restriction or limitation, the right of VDOT, and anyone contracting with VDOT, to incorporate any ideas or information from Offeror's Intellectual Property into: (a) the Design-Build Contract and the Project; (b) any other contract awarded in reference to the Project; or (c) any subsequent procurement by VDOT. In receiving all rights, title and interest in Offeror's Intellectual Property, VDOT is deemed to own all intellectual property rights, copyrights, patents, trade secrets, trademarks, and service marks in Offeror's Intellectual Property, and Offeror agrees that it shall, at the request of VDOT, execute all papers and perform all other acts that may be necessary to ensure that VDOT's rights, title and interest in Offeror's Intellectual Property are protected. The rights conferred herein to VDOT include, without limitation, VDOT's ability to use Offeror's Intellectual Property without the obligation to notify or seek permission from Offeror.

2. **Exclusions from Offeror's Intellectual Property**. Notwithstanding Section 1 above, it is understood and agreed that Offeror's Intellectual Property is not intended to include, and Offeror does not convey any rights to, the Escrow Proposal Documents submitted by Offeror in accordance with the RFP.

3. **Proposal Payment**. VDOT agrees to pay Offeror the lump sum amount of **Hundred Thousand and 00/100 Dollars ($100,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

4. **Payment Due Date**. Subject to the conditions set forth in this Agreement, VDOT will make payment of the Proposal Payment to the Offeror within forty-five (45) days after the later of: (a) notice from VDOT that it has awarded the Design-Build Contract to another Offeror; or (b) notice from VDOT that the procurement for the Project has been cancelled and that there will be no Contract Award.

5. **Effective Date of this Agreement**. The rights and obligations of VDOT and Offeror under this Agreement, including VDOT's ownership rights in Offeror's Intellectual Property, vests upon the date that Offeror's Proposal is submitted to VDOT. Notwithstanding the above, if Offeror's Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.

6. Indemnity. Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity ("Claims") of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or wilful misconduct of Offeror or any of its agents, officers, employees, representatives or subcontractors; or (b) breach of any of Offeror's obligations under this Agreement, including its representation and warranty under Section 8 hereof. This indemnity shall not apply with respect to any Claims caused by or resulting from the sole negligence or wilful misconduct of VDOT, or its agents, directors, officers, employees, representatives or contractors.

7. Assignment. Offeror shall not assign this Agreement, without VDOT's prior written consent, which consent may be given or withheld in VDOT's sole discretion. Any assignment of this Agreement without such consent shall be null and void.

8. Authority to Enter into this Agreement. By executing this Agreement, Offeror specifically represents and warrants that it has the authority to convey to VDOT all rights, title, and interest in Offeror's Intellectual Property, including, but not limited to, those any rights that might have been vested in team members, subcontractors, consultants or anyone else who may have contributed to the development of Offeror's Intellectual Property, free and clear of all liens, claims and encumbrances.

9. Miscellaneous.

a. Offeror and VDOT agree that Offeror, its team members, and their respective employees are not agents of VDOT as a result of this Agreement.

b. Any capitalized term used herein but not otherwise defined shall have the meanings set forth in the RFP.

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto.

d. It is understood and agreed by the parties hereto that if any part, term, or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the Commonwealth of Virginia, validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.

e. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

IN WITNESS WHEREOF, this Agreement has been executed and delivered as of the day and year first above written.

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

[Insert Offeror's Name]

By: Wagman Heavy Civil, Inc.

Name: Glen K. Mays

Title: Vice President/General Manager

Attachment 11.8.6(a)

Primary Debarment Form

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	2/25/2020 Date	Vice President/ General Manager Title

Wagman Heavy Civil, Inc.
Name of Firm

Attachment 11.8.6(b)

Lower Tier Debarment Form

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

February 25, 2020
Signature Date

Regional Vice President
Title

Johnson, Mirmiran & Thompson, Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	2/18/2020	President
	Date	Title

CES CONSULTING LLC
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	2/18/2020 Date	President & CEO Title

Harris Miller Miller & Hanson Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	2/18/2020 Date	President Title

Hassan Water Resources, PLC
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Elizabeth Quinn Vinick 2/18/2020 President
Signature Date Title

Quinn Consulting Services, Inc.
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	February 18, 2020	Associate
	Date	Title

Schnabel Engineering, LLC
Name of Firm

ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0095-111-270

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Signature	Date	Title
	2/19/20	President

Three Oaks Engineering
Name of Firm

I-95 Northbound Rappahannock River Crossing

City of Fredericksburg and Stafford County, Virginia

A Design-Build Project

Volume II: Design Concept Graphics
Proposal Schedule

State Project No.: 0095-111-270
Federal Project No.: NHP-095-2(545)
Contract ID Number: C00105510DB106

From: 1.26 Miles South of Route 3
To: 0.01 Miles South of Enon Road

VDOT
Virginia Department of Transportation

WAGMAN | JMT
A DESIGN-BUILD TEAM

4.3.1 Conceptual Roadway Plans

WAGMAN | JMT
A DESIGN-BUILD TEAM

CONCEPTUAL ROADWAY PLANS

DESIGN CONCEPT

THE WAGMAN TEAM'S TECHNICAL PROPOSAL MEETS OR EXCEEDS ALL REQUIREMENTS LISTED IN THE DESIGN CRITERIA TABLE (SHOWN ON THIS SHEET). THE LIMITS OF CONSTRUCTION INCLUDING ALL STORMWATER MANAGEMENT FACILITIES ARE WITHIN THE EXISTING/PROPOSED RIGHT-OF-WAY LIMITS SHOWN IN THE RFP CONCEPTUAL PLANS WITH THE EXCEPTION OF PROPOSED PERMANENT AND TEMPORARY EASEMENTS. THE PROPOSED DESIGN CONCEPT DOES NOT INCLUDE DESIGN ELEMENTS THAT REQUIRE DESIGN EXCEPTIONS AND/OR DESIGN WAIVERS EXCEPT FOR THOSE IDENTIFIED OR INCLUDED IN THE RFP OR ADDENDUMS. THE PROPOSED DESIGN ELEMENTS ARE NOT IN CONFLICT WITH THE PROPOSED FREDEX DESIGN SHOWN IN THE RFP.

THE CONCEPTUAL ROAD PLANS MEET ALL THE REQUIREMENTS ESTABLISHED IN THE RFP.
AS REQUESTED IN SECTION 4.3.1, THE CONCEPTUAL ROAD PLANS FOR THE BASE SCOPE OPTION, OPTION #1, OPTION #2, AND OPTION #3 IDENTIFY:

A. GENERAL GEOMETRY INCLUDING HORIZONTAL CURVE DATA AND ASSOCIATED DESIGN SPEEDS, THE NUMBER AND WIDTH OF LANES AND SHOULDERS (SEE PLAN SHEETS 3 - 14 AND TYPICAL SECTIONS)
B. HORIZONTAL ALIGNMENTS (SEE PLAN SHEETS 3 - 14)
C. MAXIMUM GRADES FOR ALL SEGMENTS AND CONNECTORS (SEE TABLE THIS SHEET)
D. TYPICAL SECTIONS OF THE ROADWAY SEGMENTS TO INCLUDE RAMPS, RETAINING WALLS, BRIDGE STRUCTURES AND PAVEMENT SECTIONS (SEE PLAN SHEETS 3 -14)
E. CONCEPTUAL HYDRAULIC AND STORMWATER MANAGEMENT DESIGN (SEE PLAN SHEETS 3 -14)
F. PROPOSED RIGHT OF WAY LIMITS (SEE PLAN SHEETS 3 - 14)
G. PROPOSED UTILITY IMPACTS (SEE PLAN SHEETS 3 - 14 AND TABLE 4.4.2.2 IN VOLUME 1)
H. SOUNDWALL LOCATIONS (SEE PLAN SHEETS 3, 6 AND 7)
I. LIGHTING (SEE PLAN SHEETS 10 AND 11)
J. GUARDRAIL/BARRIER (SEE PLAN SHEETS 3 - 14 AND TABLE THIS SHEET)
K. LOCATIONS OF MILL AND OVERLAY/BUILDUP OF EXISTING PAVEMENT/NEW PAVEMENT (SEE PLAN SHEETS 3 - 14 AND TYPICAL SECTIONS)
L. SIGNAGE FOR RTE. 3 INTERCHANGE, RTE. 17 INTERCHANGE AND I-95 GP AND CD LANES, INCLUDING NORTH OF ROUTE 17 SPECIFICALLY THE OVERLAP WITH FREDEX PROJECT (SEE PLAN SHEETS 3 - 14)
M. PROVISION FOR FUTURE 4TH LANE ON I-95 NB AND ASSOCIATED CONSTRUCTION LIMITS WITHIN THE RIGHT OF WAY LIMITS SHOWN ON THE RFP CONCEPTRUAL PLANS (SEE PLAN SHEET 15)
N. KEY PROJECT FEATURES (ITS, SIGNALS) (SEE PLAN SHEETS 3 -14)

THE CONCEPTUAL STRUCTURAL PLANS MEET ALL THE REQUIREMENTS ESTABLISHED IN THE RFP.
AS REQUESTED IN SECTION 4.3.2, THE CONCEPTUAL STRUCTURAL PLANS FOR INTERSTATE 95 BRIDGES AT ROUTE 17 AND THE RAPPAHANNOCK RIVER IDENTIFY:

A. DESCRIPTION AND STRUCTURAL CONCEPT FOR THE BRIDGE STRUCTURES
B. RETAINING WALLS
C. HORIZONTAL AND VERTICAL CLEARANCES
D. THE NUMBER AND WIDTHS OF LANES AND SHOULDERS
E. MAJOR DRAINAGE STRUCTURES PROPOSED
F. RENDERINGS OF AN ELEVATION VIEW, TRANSVERSE SECTION, AND ABUTMENT CONFIGURATIONS FOR EACH PROPOSED STRUCTURE TYPE

MAXIMUM GRADES

ALIGNMENT	MAXIMUM UPGRADE	MAXIMUM DOWNGRADE	ALLOWABLE GRADE
I-95 NB GP	3.17%	3.42%	4.00%
I-95 NB CD	3.00%	3.50%	4.00%
I-95 NB SLIP RAMP	N/A	3.00%	4.00%
ROUTE 3 RAMP C	1.35%	3.30%	5.00%
ROUTE 17 RAMP B	2.00%	2.30%	5.00%
ROUTE 17 RAMP C1	N/A	1.54%	7.00%
ROUTE 17 RAMP C2	0.25%	3.06%	5.00%
ROUTE 17 RAMP D	1.21%	1.65%	5.00%
ROUTE 17 LOOP D	2.76%	N/A	7.00%
ROUTE 17 SB	1.25%	0.81%	7.00%
ROUTE 17 NB	1.30%	1.26%	7.00%
FREDEX RAMP	2.50%	N/A	4.00%

DESIGN CRITERIA TABLE

No.	Design Criteria		Proposed I-95 Northbound General Purpose Lanes (on New Alignment South of Route 17	Existing I-95 Northbound General Purpose Lanes (North of Route 17)	Slip Ramp for I-95 Northbound General Purpose to I-95 Collector-Distributor Lanes	Northbound I-95 Collector-Distributor Lanes (C-D on New Alignment or on Existing C-D)	Northbound I-95 Collector-Distributor Lanes (Existing Northbound Mainline Lanes South of Route 17	Route 17 Warrenton Road	Route 3 Ramp C EB Route 3 to NBCD	Route 17 Ramp D - NBCD to Route 17 - Base "Triple Left"	Route 17 Loop D - EB Route 17 to NBCD	Route 17 Ramp B - SBCD to NB Route 17	Route 17 Ramp C - NB Route 17 to NBCD, Curve 1	Route 17 Ramp C - NB Route 17 to NBCD, Curve 2	FREDEX Ramp HWN Extension to NBCD
1	Classification		Interstate	Rural Principal Arterial (Interstate)	Interstate	Interstate	Rural Principal Arterial (Interstate)	Urban Other Principal Arterial	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp	Interchange Ramp
2	Geometric Design Standard		GS-INT	GS-1	GS-INT	GS-INT	GS-1	GS-5	GS-R	GS-R	GS-R	GS-R	GS-R	GS-R	GS-R
3	Terrain		Rolling	Match Existing	Rolling	Rolling	Match Existing	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Rolling
4	Average Daily Traffic (ADT)	Current (2016)	N/A	62,200	N/A	N/A	69,000	65,300	-	-	-	-	-	-	-
		Opening Year (2022)	40,300	65,600	13,800	38,100	38,100	83,900	-	-	-	-	-	-	-
		Design (2042)	47,000	76,200	15,900	44,100	44,100	103,800	-	-	-	-	-	-	-
5	Speed	Posted	65	65	65	65	65	45	-	-	-	-	-	-	50
		Design	75	75	70	70	75	45	60	50	30	45	25	50	55
6	Design Vehicle		WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67	WB-67
7	Minimum Curve Radius		2215	2215	3300	1821	2215	713	1204	760	215	589	135	760	960
8	Superelevation	Standard	TC-5.11R	Match Existing	TC-5.11R	TC-5.11R	Match Existing	TC-5.11U	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R	TC-5.11R
		Max Rate	8.0%	Match Existing	8.0%	8.0%	Match Existing	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
9	Maximum Grade		4.0%	Match Existing	4.0%	4.0%	Match Existing	7.0%	5.0%	5.0%	7.0%	5.0%	7.0%	5.0%	4.0%
10	Minimum Stopping Sight Distance		820	820	820	730	820	425	570	425	200	360	155	425	495
11	Vertical Design Criteria	"K" Crest	312	312	312	247	312	84	151	84	19	61	12	84	114
		"K" Sag	206	206	206	181	206	96	136	96	37	79	26	96	115
12	Lanes	Number	3	3	2	3 / 2	3	6	2	3	1	2	1	1	1
		Width	12	12	12	12	12	12	12	12	16	12	18	16	16
13	Paved Shoulder Width	Left	10	10	10	10 (3 lane); 4 (2 lane)	10	4	4	4	4	4	4	4	4
		Right	10	10	10	10	10	8	10	8	8	8	8	8	8
14	Slope/Max Slope		CS-4B	CS-4B	CS-4B	CS-4B	CS-4B	CS-4B	2:1	2:1	2:1	2:1	2:1	2:1	2:1
15	Vertical Clearance		16.5	16.5	N/A	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5

GUARDRAIL AND BARRIER LOCATION

ROADWAY	STATION TO STATION FROM	STATION TO STATION TO	OFFSET	TYPE
I-95 NB GP	4461+28	4463+68	LT	GR-MGS
	4662+43	4463+68	RT	GR-MGS
	4469+64	4471+49	RT	GR-MGS
	4472+88	4489+25	RT	GR-MGS
	4489+25	4489+75	RT	MB-7F
	4489+75	4496+19	RT	GR-MGS
	4496+19	4500+10	RT	MB-7F
	4500+10	4501+08	RT	BPPS
	4500+79	4524+60	LT	GR-MGS
	4501+08	4507+63	RT	GR-MGS
	4507+63	4508+92	RT	MB-7F
	4516+01	4517+45	RT	MB-7E
	4517+45	4533+90	RT	MB-7F
	4524+60	4527+07	LT	MB-7E
	4527+07	4542+69	LT	MB-8A
	4533+90	4542+69	RT	GR-MGS
	4554+70	4591+20	RT	GR-MGS
	4554+70	4565+90	LT	MB-8A
	4565+90	4574+40	LT	MB-7F
	4574+40	4599+25	LT	GR-MGS
	4662+83	4668+40	RT	MB-8A
	4689+64	4692+10	RT	GR-MGS
	4705+88	4711+92	RT	GR-MGS
	4717+88	4723+51	RT	GR-MGS
	4732+87	4735+32	RT	GR-MGS
ROUTE 3 RAMP C	5461+92	5463+92	LT	GR-MGS
	5462+12	5463+87	RT	GR-MGS
	5467+30	5472+28	LT	GR-MGS
	5470+20	5472+28	RT	GR-MGS
	5472+28	5473+08	LT	BPPS
	5472+28	5473+08	RT	BPPS
	5473+08	5495+63	LT	GR-MGS
	5473+08	5513+40	RT	MB-7F
	5495+63	5500+66	LT	MB-7F
	5500+66	5501+69	LT	BPPS
	5501+69	5508+20	LT	GR-MGS
	5508+20	5509+49	LT	MB-7F
	5513+40	5516+89.23	RT	GR-MGS
	5516+45	5516+89.23	LT	MB-7E
I-95 NB CD	5516+81	5517+80	LT	MB-7E
	5516+81	5543+06	RT	GR-MGS
	5517+80	5543+06	LT	GR-MGS
	5554+31	5591+05	LT	GR-MGS
	5554+31	5555+60	RT	GR-MGS
	5561+80	5564+12	RT	GR-MGS
	5569+72	5572+22	RT	GR-MGS
	5575+90	5588+51	RT	GR-MGS
	5596+10	5601+92	RT	GR-MGS
	5601+91	5606+06	LT	GR-MGS
	5604+08	5606+09	RT	GR-MGS
	5607+54	5619+51	RT	GR-MGS
	5607+51	5613+97	LT	GR-MGS
	5624+68	5627+18	LT	GR-MGS
	5634+65	5636+90	LT	GR-MGS
	5621+84	5636+15	RT	GR-MGS
	5642+00	5662+63.80	RT	MB-8A
I-95 NB GP along I-95 SB	4516+60	4524+60	LT	MB-7F
	4574+40	4583+60	LT	MB-7F
	4583+60	4585+50	LT	GR-MGS
ROUTE 17 RAMP D	706+80	715+17	RT	GR-MGS
	709+10	715+86	LT	GR-MGS
ROUTE 17 LOOP D	304+05	306+85	RT	GR-MGS
	303+46	304+68	LT	GR-MGS
ROUTE 17 RAMP B	607+59	609+09	LT	GR-MGS
	607+59	609+09	RT	GR-MGS
ROUTE 17 RAMP C2	100+00	105+06	RT	GR-MGS
ROUTE 17 NB	8012+15	8015+70	RT	MB-7D
	8023+14	8024+30	RT	GR-MGS
	8024+30	8024+95	RT	MB-7F
ROUTE 17 NB along ROUTE 17 SB	8014+26	8012+20	LT	MB-7F
FREDEX RAMP	6000+00	6007+30	RT	GR-MGS
	6005+92	6032+06	LT	MB-8A
	6008+43	6011+84	RT	GR-MGS
	6023+60	6025+44	RT	GR-MGS

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

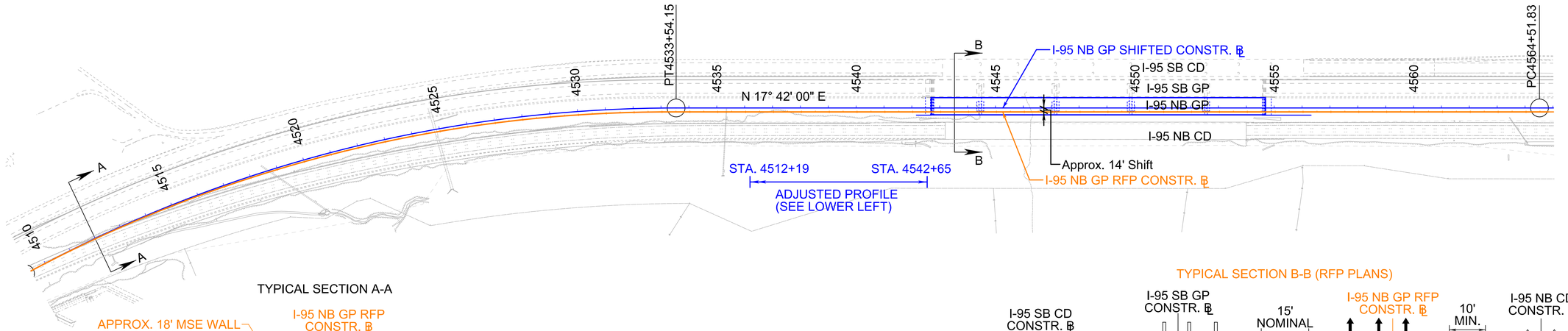
SHEET NO.
1

PAGE NO.
57

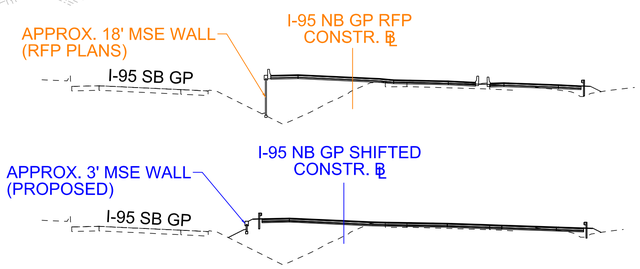
CONCEPTUAL ROADWAY PLANS

MAJOR PROJECT ENHANCEMENTS PROPOSED IN THE WAGMAN'S TEAM DESIGN CONCEPT

SHIFTED I-95 NB GP RAPPAHANNOCK RIVER BRIDGE TO THE WEST



TYPICAL SECTION A-A

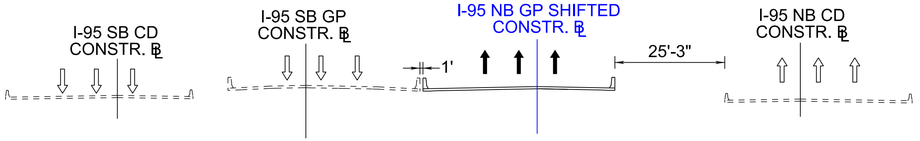


Shifted I-95 NB GP Rappahannock River Bridge to the West

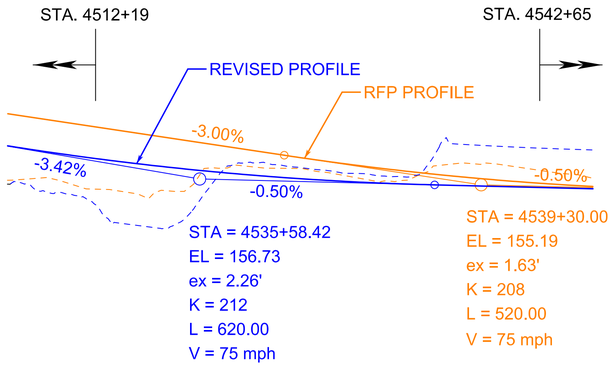
- 1' Horizontal Clearance Between I-95 NB GP and I-95 SB GP to Provide for Improved Constructability and Reduced Environmental Footprint
- Reduces MSE Wall Lengths and Heights and Optimized Earthwork Balance
- Parapets along I-95 NB GP and I-95 SB GP at Same Elevation

TYPICAL SECTION B-B (RFP PLANS)

TYPICAL SECTION B-B (PROPOSED)



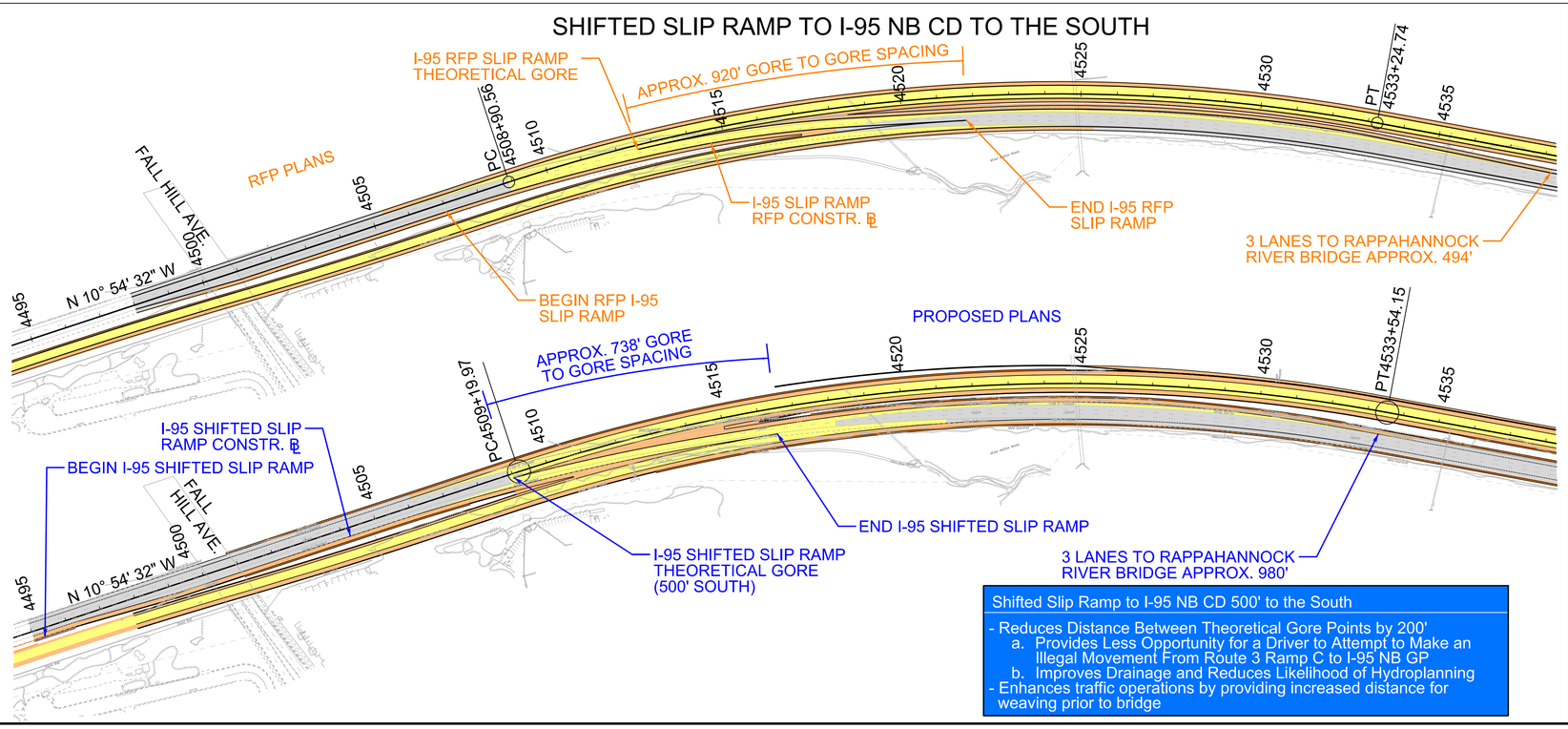
I-95 NB GP PROFILE LOWERED SOUTH OF RAPPAHANNOCK RIVER



Lowered Profile Grade South of Rappahannock River

- Reduces MSE Wall Length by 2250'
- Reduces Average MSE Wall Height From 18' to 3'
- Optimized Earthwork Balance
  (See Typical Section A-A Above)

SHIFTED SLIP RAMP TO I-95 NB CD TO THE SOUTH



Shifted Slip Ramp to I-95 NB CD 500' to the South

- Reduces Distance Between Theoretical Gore Points by 200'
  a. Provides Less Opportunity for a Driver to Attempt to Make an Illegal Movement From Route 3 Ramp C to I-95 NB GP
  b. Improves Drainage and Reduces Likelihood of Hydroplanning
- Enhances traffic operations by providing increased distance for weaving prior to bridge

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

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JMT

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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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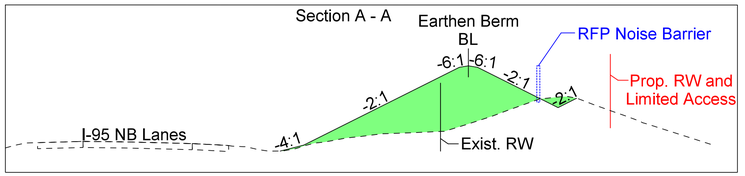
58

CONCEPTUAL ROADWAY PLANS

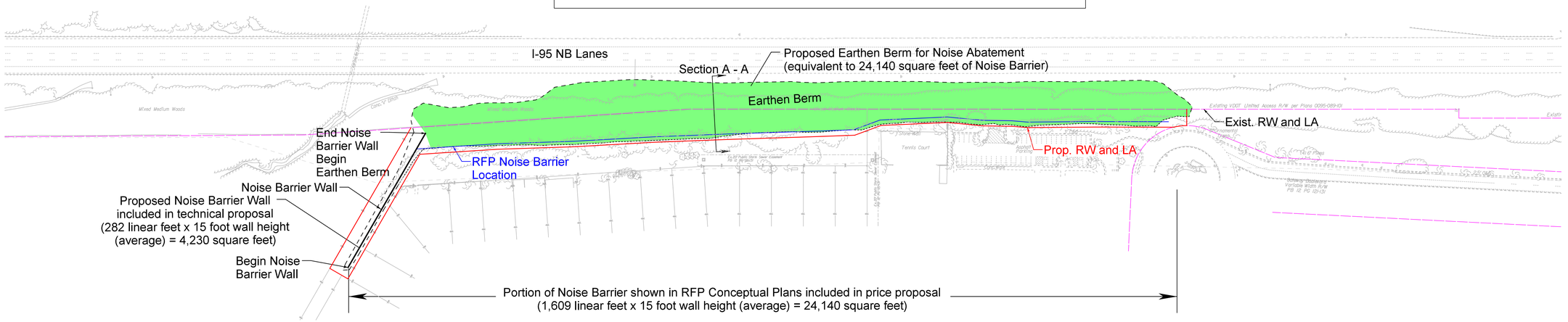
MAJOR PROJECT ENHANCEMENTS PROPOSED IN THE WAGMAN'S TEAM DESIGN CONCEPT

EARTHEN BERM FOR NOISE ABATEMENT



Earthen Berm for Noise Abatement

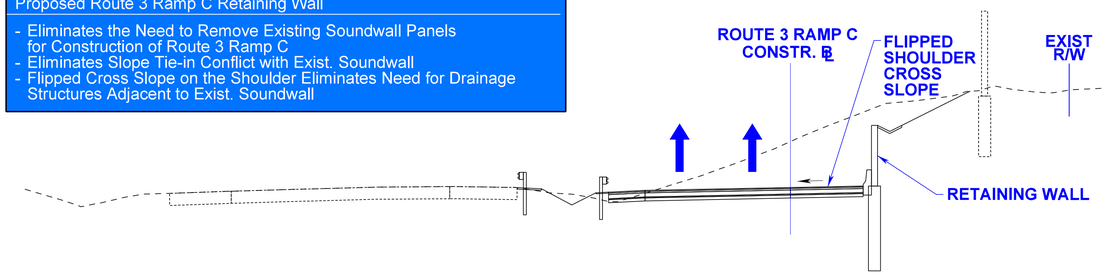
- Reduces 1,609 linear feet of concrete noise barrier wall
- Maximizes Aesthetics
- Reduces Future Maintenance Costs



PROPOSED ROUTE 3 RAMP C RETAINING WALL

Proposed Route 3 Ramp C Retaining Wall

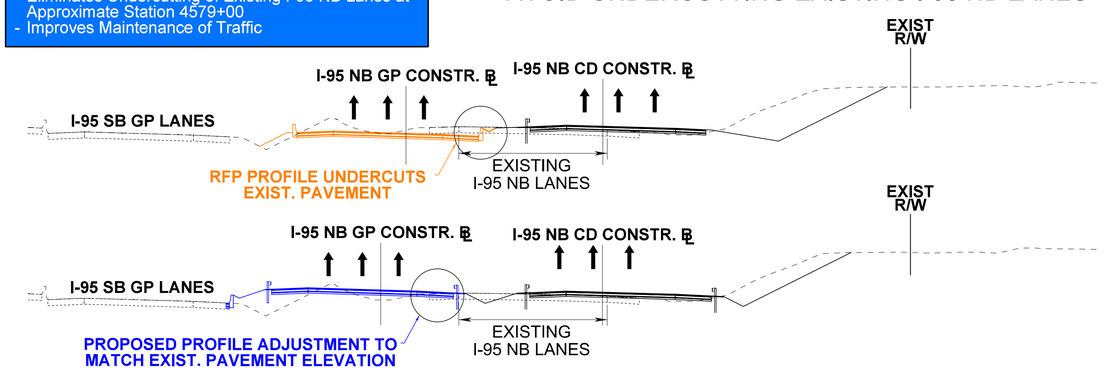
- Eliminates the Need to Remove Existing Soundwall Panels for Construction of Route 3 Ramp C
- Eliminates Slope Tie-in Conflict with Exist. Soundwall
- Flipped Cross Slope on the Shoulder Eliminates Need for Drainage Structures Adjacent to Exist. Soundwall



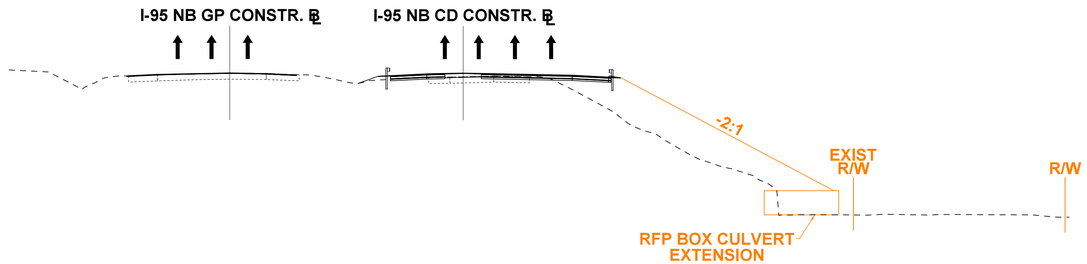
PROPOSED PROFILE ADJUSTMENT TO AVOID UNDERCUTTING EXISTING I-95 NB LANES

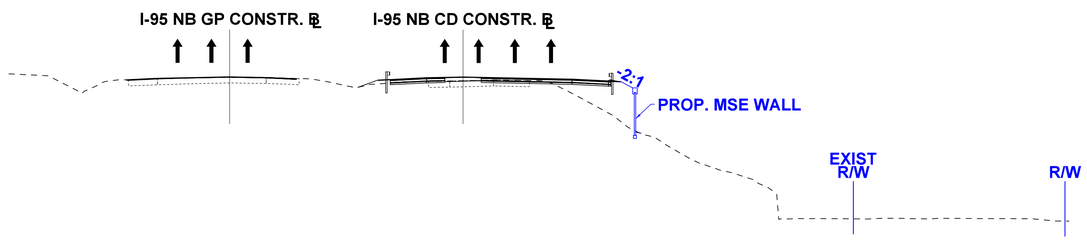
Proposed Profile Adjustment North of River

- Eliminates Undercutting of Existing I-95 NB Lanes at Approximate Station 4579+00
- Improves Maintenance of Traffic



PROPOSED MSE WALL TO ELIMINATE BOX CULVERT EXTENSION





Proposed MSE Wall to Eliminate Box Culvert Extension

- Eliminates Box Culvert and Pipe Extension
- Minimizes Environmental Impacts to Streams and Wetlands

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RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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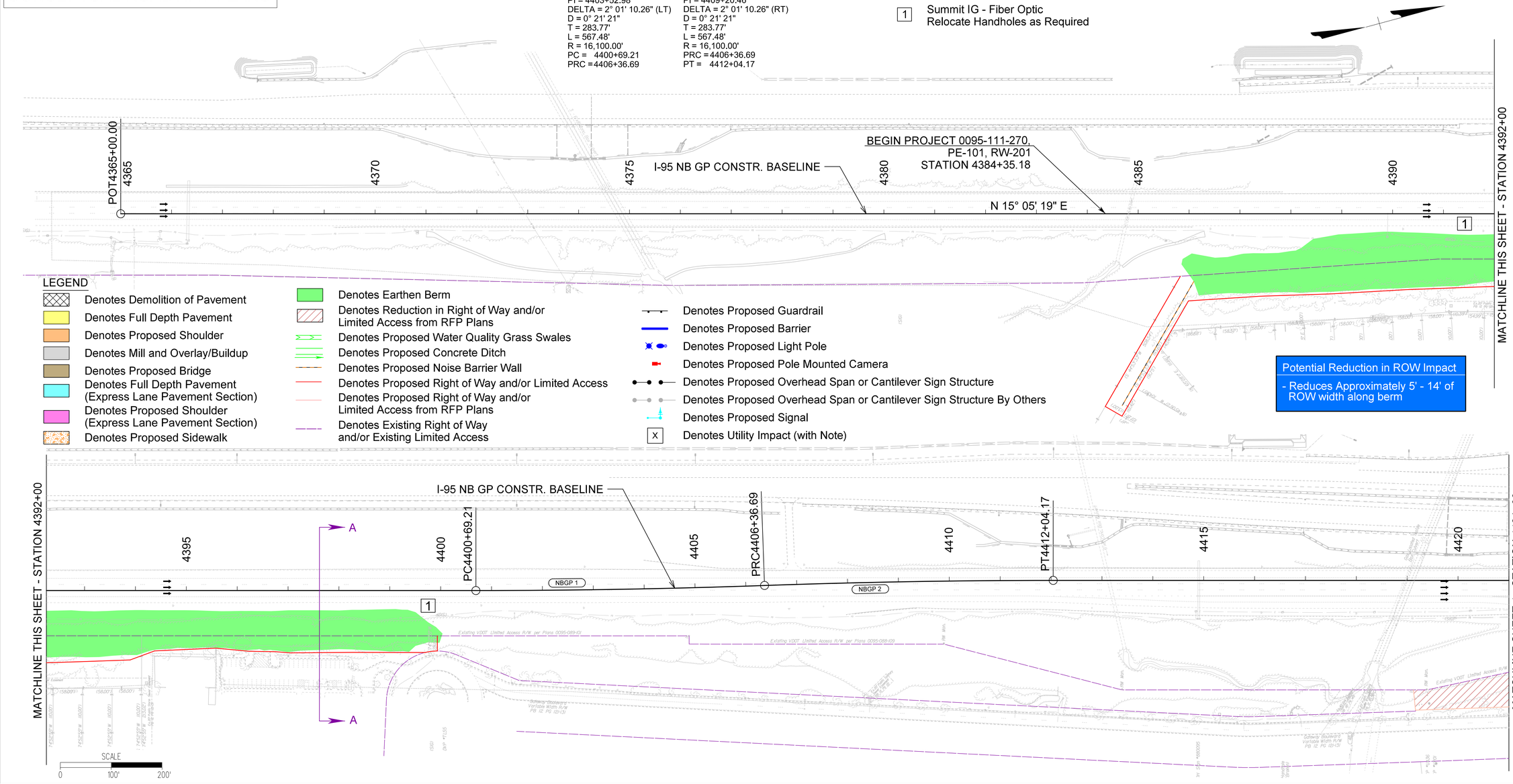
CONCEPTUAL ROADWAY PLANS

Curve NBGP 1
PI = 4403+52.98
DELTA = 2° 01' 10.26" (LT)
D = 0° 21' 21"
T = 283.77'
L = 567.48'
R = 16,100.00'
PC = 4400+69.21
PRC = 4406+36.69

Curve NBGP 2
PI = 4409+20.46
DELTA = 2° 01' 10.26" (RT)
D = 0° 21' 21"
T = 283.77'
L = 567.48'
R = 16,100.00'
PRC = 4406+36.69
PT = 4412+04.17

[1] Summit IG - Fiber Optic
Relocate Handholes as Required



LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Proposed Shoulder
- Denotes Mill and Overlay/Buildup
- Denotes Proposed Bridge
- Denotes Full Depth Pavement (Express Lane Pavement Section)
- Denotes Proposed Shoulder (Express Lane Pavement Section)
- Denotes Proposed Sidewalk
- Denotes Earthen Berm
- Denotes Reduction in Right of Way and/or Limited Access from RFP Plans
- Denotes Proposed Water Quality Grass Swales
- Denotes Proposed Concrete Ditch
- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Right of Way and/or Limited Access
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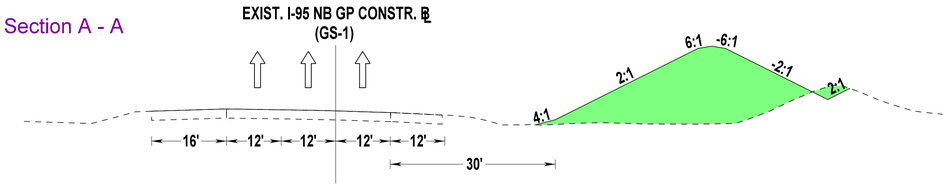
- Denotes Proposed Overhead Span or Cantilever Sign Structure By Others
- Denotes Proposed Signal
- [X] Denotes Utility Impact (with Note)

Earthen Berm for Noise Abatement
- Reduces 1,609 linear feet of concrete noise barrier wall
- Maximizes Aesthetics
- Reduces Future Maintenance Costs

TYPICAL SECTIONS

Section A - A



Eliminated ROW Impacts to Parcel 008
- Elimination of Potential BMP

DESIGN BUILDER
WAGMAN
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DESIGNED BY
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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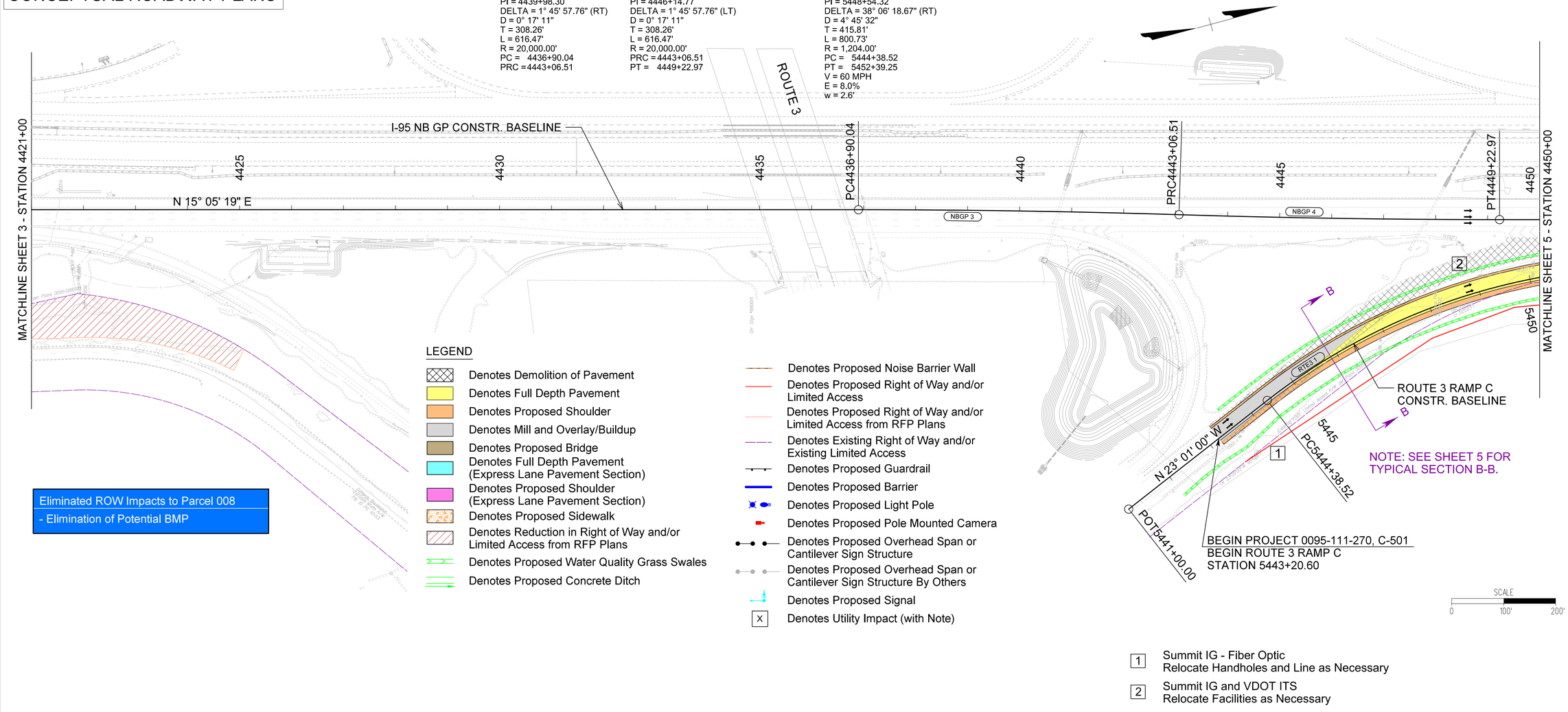
CONCEPTUAL ROADWAY PLANS

Curve NBGP 3
PI = 4439+98.30
DELTA = 1° 45' 57.76" (RT)
D = 0° 17' 11"
T = 308.26'
L = 616.47'
R = 20,000.00'
PC = 4436+90.04
PRC = 4443+06.51

Curve NBGP 4
PI = 4446+14.77
DELTA = 1° 45' 57.76" (LT)
D = 0° 17' 11"
T = 308.26'
L = 616.47'
R = 20,000.00'
PRC = 4443+06.51
PT = 4449+22.97

Curve RTE3 1
PI = 5448+54.32
DELTA = 38° 06' 18.67" (RT)
D = 4° 45' 32"
T = 415.81'
L = 800.73'
R = 1,204.00'
PC = 5444+38.52
PT = 5452+39.25
V = 60 MPH
E = 8.0%
w = 2.6'



Eliminated ROW Impacts to Parcel 008
- Elimination of Potential BMP

LEGEND

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- Denotes Proposed Signal
- [X] Denotes Utility Impact (with Note)

[1] Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

[2] Summit IG and VDOT ITS
Relocate Facilities as Necessary

LEGEND - PAVEMENT DESIGN: ALTERNATIVE 1: STANDARD FLEXIBLE PAVEMENT

- Denotes Full Depth Pavement
- Denotes Proposed Shoulder

MAINLINE DESIGN: I-95 NB CD and NB GP Lanes, Route 3 Ramp C, I-95 Slip Ramp, Route 17 and Route 17 Loops and Ramps

SHOULDER DESIGN: Extend mainline design through shoulder area

Surface:	2 inches Asphalt Concrete Type, SM-12.5E
Intermediate:	3 inches Asphalt Concrete Type, IM-19.0D
Base:	8 inches Asphalt Concrete Type, BM-25.0A
Drainage:	2 inches Open Graded Drainage Layer (OGDL)
Subbase:	6 inches Aggregate Base Material, Type I, 21A

- Denotes Full Depth Pavement (Express Lane Pavement Section)
- Denotes Proposed Shoulder (Express Lane Pavement Section)

MAINLINE DESIGN: I-95 NB CD Ramp (North of Route 17) to Express Lanes (Sta. 4635+00 to Sta. 4680+00), to include the CD Ramp entering NB General Purpose Lanes

SHOULDER DESIGN: Extend mainline design through shoulder area

Surface:	2 inches Asphalt Concrete Type, SM-12.5E
Intermediate:	3 inches Asphalt Concrete Type, IM-19.0D
Base:	11 inches Asphalt Concrete Type, BM-25.0A
Drainage:	4 inches Aggregate Base Materials, Type I, Size No. 21B
Subbase:	6 inches Aggregate Base Material, Type I, 21A

- Denotes Mill and Overlay/Buildup

MILLING AND OVERLAY/BUILDUP:
All Locations Except Route 17

Milling:	2 inches depth of milling required
Overlay:	2 inches Asphalt Concrete Type, SM-12.5E

MILLING AND OVERLAY/BUILDUP:
Route 17

Milling:	1.5 inches depth of milling required
Overlay:	1.5 inches Asphalt Concrete Type, SM-12.5E

Underdrains will be provided and meet RFP requirements

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I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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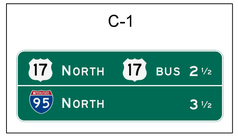
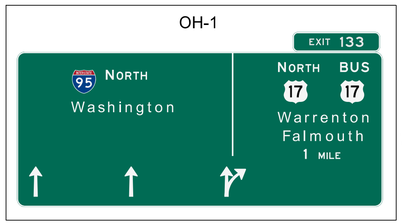
CONCEPTUAL ROADWAY PLANS

Curve NBGP 5
PI = 4474+15.68
DELTA = 25° 59' 50.88" (LT)
D = 1° 01' 30"
T = 1,290.42'
L = 2,536.41'
R = 5,590.00'
PC = 4461+25.26
PT = 4486+61.67

Curve RTE3 1
PI = 5448+54.32
DELTA = 38° 06' 18.67" (RT)
D = 4° 45' 32"
T = 415.81'
L = 800.73'
R = 1,204.00'
PC = 5444+38.52
PT = 5452+39.25
V = 60 MPH
E = 8.0%
w = 2.6'

Curve RTE3 2
PI = 5474+04.19
DELTA = 25° 59' 50.88" (LT)
D = 1° 02' 30"
T = 1,269.65'
L = 2,495.58'
R = 5,500.00'
PC = 5461+34.54
PT = 5486+30.12
V = 65 MPH
E = 3.4%





SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

LEGEND

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- Denotes Proposed Signal
- X Denotes Utility Impact (with Note)

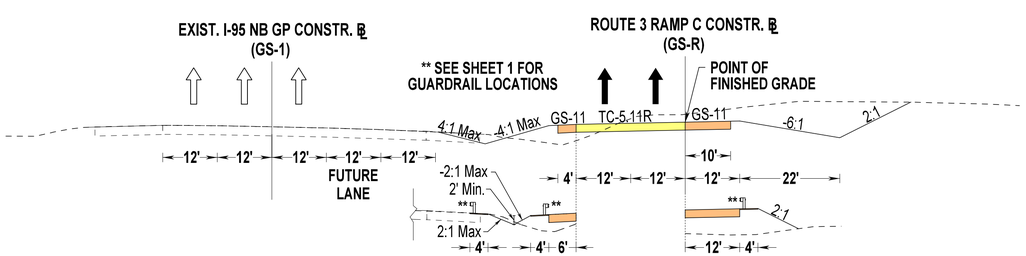
1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

2 VDOT ITS - Underground Electrical
Relocate Facilities and Handholes as Necessary

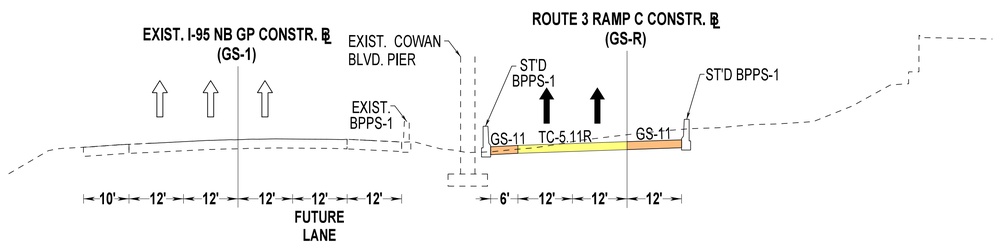
SCALE
0 100' 200'

TYPICAL SECTIONS

Section B - B



Section C - C



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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CONCEPTUAL ROADWAY PLANS

1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

2 VDOT ITS - Underground Electrical
Relocate Facilities and Handholes as Necessary

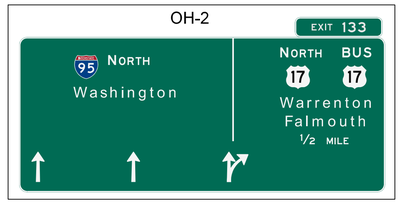
Curve NBGP 5
PI = 4474+15.68
DELTA = 25° 59' 50.88" (LT)
D = 1° 01' 30"
T = 1,290.42'
L = 2,536.41'
R = 5,590.00'
PC = 4461+25.26
PT = 4486+61.67

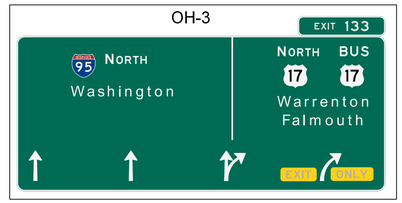
Curve RTE3 2
PI = 5474+04.19
DELTA = 25° 59' 50.88" (LT)
D = 1° 02' 30"
T = 1,269.65'
L = 2,495.58'
R = 5,500.00'
PC = 5461+34.54
PT = 5486+30.12
V = 65 MPH
E = 3.4%

Curve RTE3 3
PI = 5498+47.56
DELTA = 2° 02' 17.91" (RT)
D = 0° 21' 29"
T = 284.63'
L = 569.20'
R = 16,000.00'
PC = 5495+62.93
PRC = 5501+32.13
V = 65 MPH
E = NC

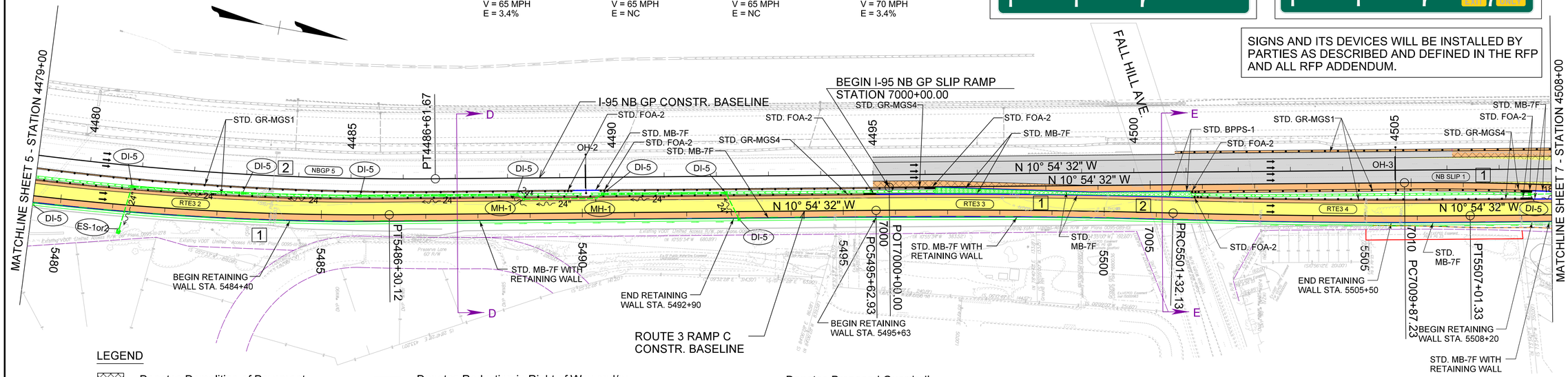
Curve RTE3 4
PI = 5504+16.76
DELTA = 2° 02' 17.91" (LT)
D = 0° 21' 29"
T = 284.63'
L = 569.20'
R = 16,000.00'
PRC = 5501+32.13
PT = 5507+01.33
V = 65 MPH
E = NC

Curve NB SLIP 1
PI = 7014+64.08
DELTA = 8° 56' 23.00" (RT)
D = 0° 56' 21"
T = 476.85'
L = 951.77'
R = 6,100.00'
PC = 7009+87.23
PT = 7019+39.00
V = 70 MPH
E = 3.4%





SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.



LEGEND

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- X Denotes Utility Impact (with Note)

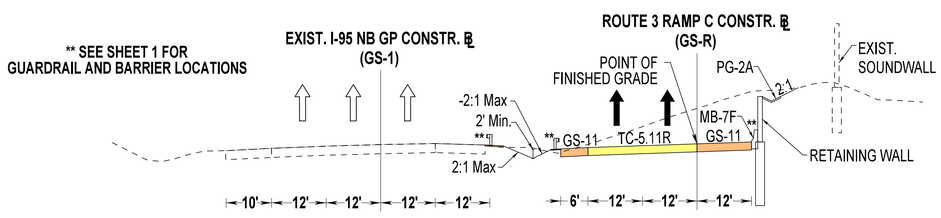
Proposed Route 3 Ramp C Retaining Wall

- Eliminates the Need to Remove Existing Soundwall Panels for Construction of Route 3 Ramp C
- Eliminates Slope Tie-in Conflict with Exist. Soundwall
- Flipped Cross Slope on the Shoulder Eliminates Need for Drainage Structures Adjacent to Exist. Soundwall

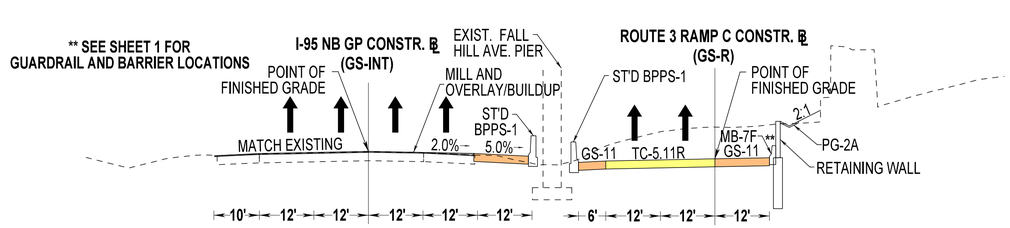
SCALE 0 100' 200'

TYPICAL SECTIONS

Section D - D



Section E - E



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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CONCEPTUAL ROADWAY PLANS

Shifted Slip Ramp to I-95 NB CD 500' to the South

- Reduces Distance Between Theoretical Gore Points by 200'
  a. Provides Less Opportunity for a Driver to Attempt to Make an Illegal Movement From Route 3 Ramp C to I-95 NB GP
  b. Improves Drainage and Reduces Likelihood of Hydroplanning
- Enhances traffic operations by providing increased distance for weaving prior to bridge

Lowered Profile Grade South of Rappahannock River

- Reduces MSE Wall Length by 2250'
- Reduces MSE Wall Height From 18' to 3'
- Optimized Earthwork Balance

LEGEND

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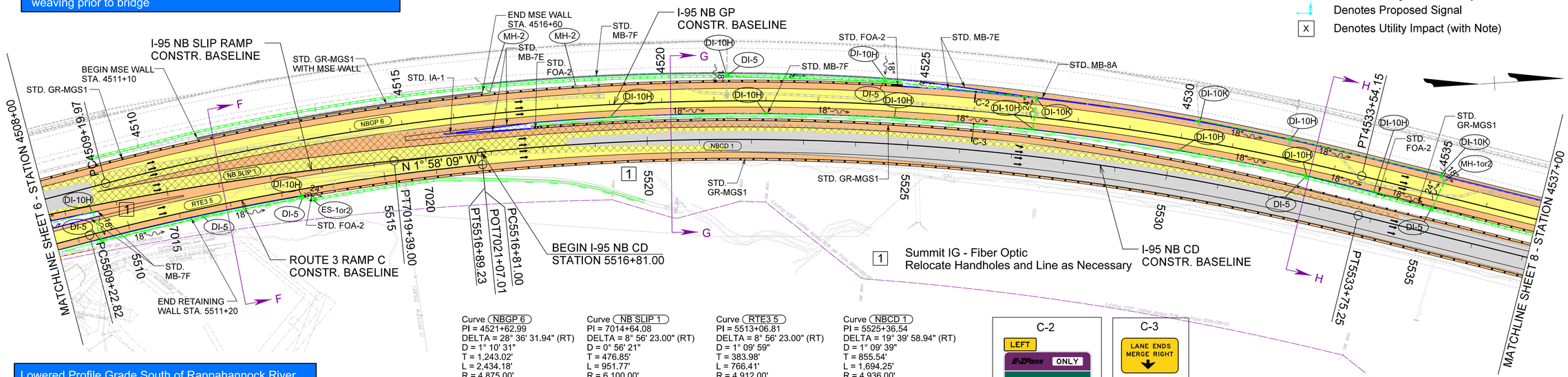


Curve NBGP 6
PI = 4521+62.99
DELTA = 28° 36' 31.94" (RT)
D = 1° 10' 31"
T = 1,243.02'
L = 2,434.18'
R = 4,875.00'
PC = 4509+19.97
PT = 4533+54.15
V = 75 MPH
E = 4.8%

Curve NB SLIP 1
PI = 7014+64.08
DELTA = 8° 56' 23.00" (RT)
D = 0° 56' 21"
T = 476.85'
L = 951.77'
R = 6,100.00'
PC = 7009+87.23
PT = 7019+39.00
V = 70 MPH
E = 3.4%

Curve RTE3.5
PI = 5513+06.81
DELTA = 8° 56' 23.00" (RT)
D = 1° 09' 59"
T = 383.98'
L = 766.41'
R = 4,912.00'
PC = 5509+22.82
PT = 5516+89.23
V = 65 MPH
E = 3.6%

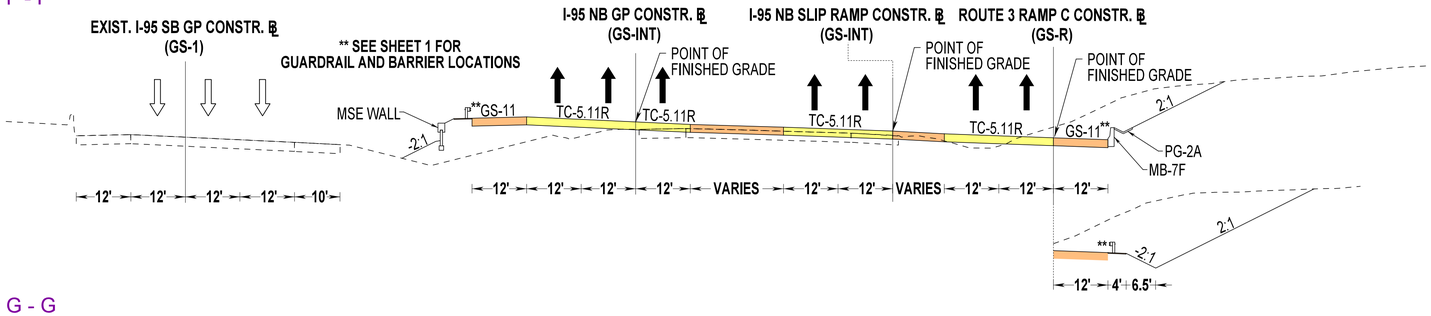
Curve NBCD 1
PI = 5525+36.54
DELTA = 19° 39' 58.94" (RT)
D = 1° 09' 39"
T = 855.54'
L = 1,694.25'
R = 4,936.00'
PC = 5516+81.00
PT = 5533+75.25
V = 75 MPH
E = MATCH EXISTING

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

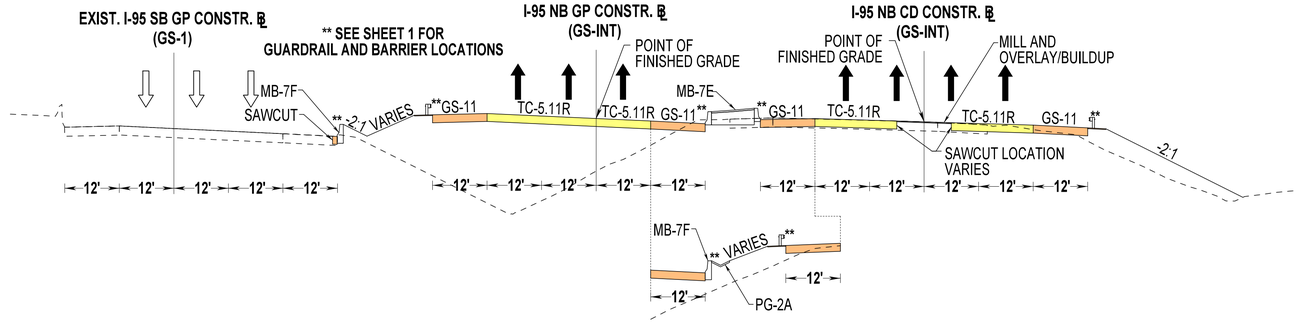
SCALE 0 100' 200'

TYPICAL SECTIONS

Section F - F



Section G - G



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER: WAGMAN — General Construction | Heavy Civil | Geotechnical

DESIGNED BY: JMT

STATE PROJECT: 0095-111-270, PE-101, RW-201, C-501, B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION

I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO. 7

PAGE NO. 64

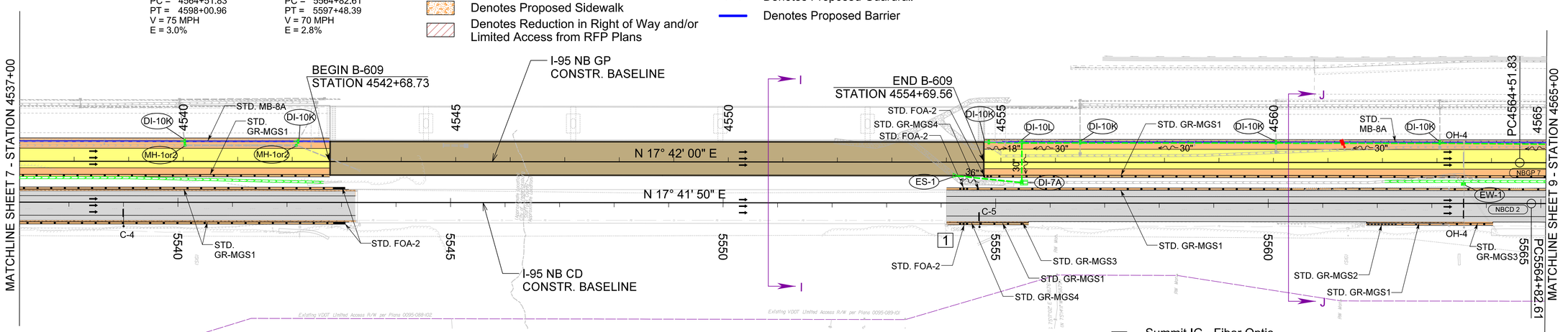
CONCEPTUAL ROADWAY PLANS

Curve NBGP 7
PI = 4581+51.29
DELTA = 23° 59' 11.00" (RT)
D = 0° 42' 58"
T = 1,699.46'
L = 3,349.13'
R = 8,000.00'
PC = 4564+51.83
PT = 4598+00.96
V = 75 MPH
E = 3.0%

Curve NBCD 2
PI = 5581+39.78
DELTA = 23° 59' 21.00" (RT)
D = 0° 44' 04"
T = 1,657.17'
L = 3,265.78'
R = 7,800.00'
PC = 5564+82.61
PT = 5597+48.39
V = 70 MPH
E = 2.8%

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Proposed Shoulder
- Denotes Mill and Overlay/Buildup
- Denotes Proposed Bridge
- Denotes Full Depth Pavement (Express Lane Pavement Section)
- Denotes Proposed Shoulder (Express Lane Pavement Section)
- Denotes Proposed Sidewalk
- Denotes Reduction in Right of Way and/or Limited Access from RFP Plans
- Denotes Proposed Water Quality Grass Swales
- Denotes Proposed Concrete Ditch
- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Proposed Right of Way and/or Limited Access from RFP Plans
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Overhead Span or Cantilever Sign Structure By Others
- Denotes Proposed Signal
- X Denotes Utility Impact (with Note)



1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

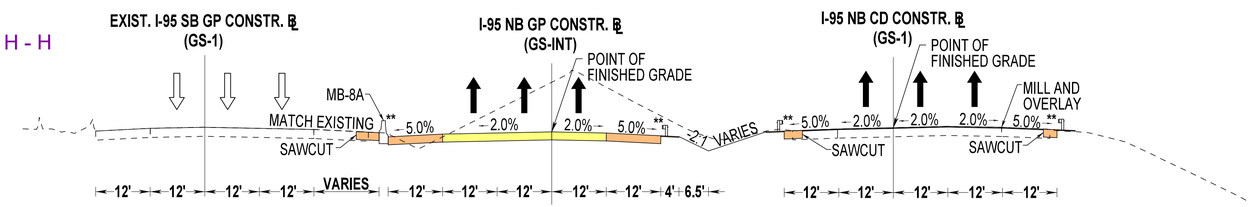
Shifted I-95 NB GP Rappahannock River Bridge to the West

- 1' Horizontal Clearance Between I-95 NB GP and I-95 SB GP to Provide for Improved Constructability and Reduced Environmental Footprint
- Reduces MSE Wall Lengths and Heights and Optimized Earthwork Balance
- Parapets along I-95 NB GP and I-95 SB GP at Same Elevation

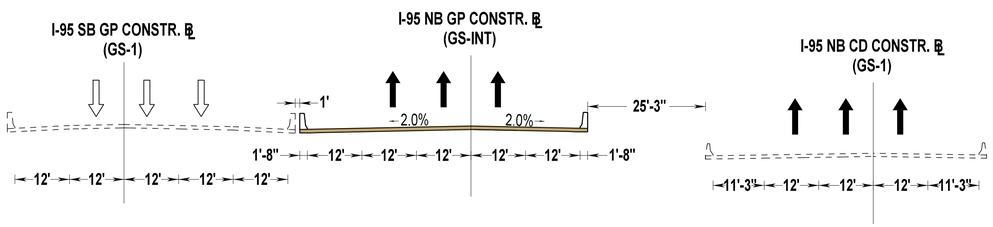
SCALE
0 100' 200'

TYPICAL SECTIONS

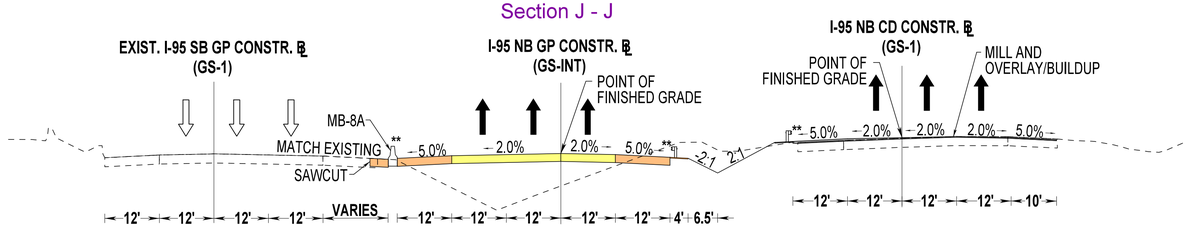
Section H - H



Section I - I



Section J - J



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
8

PAGE NO.
65

CONCEPTUAL ROADWAY PLANS

Curve NBGP 7
PI = 4581+51.29
DELTA = 23° 59' 11.00" (RT)
D = 0° 42' 58"
T = 1,699.46'
L = 3,349.13'
R = 8,000.00'
PC = 4564+51.83
PT = 4598+00.96
V = 75 MPH
E = 3.0%

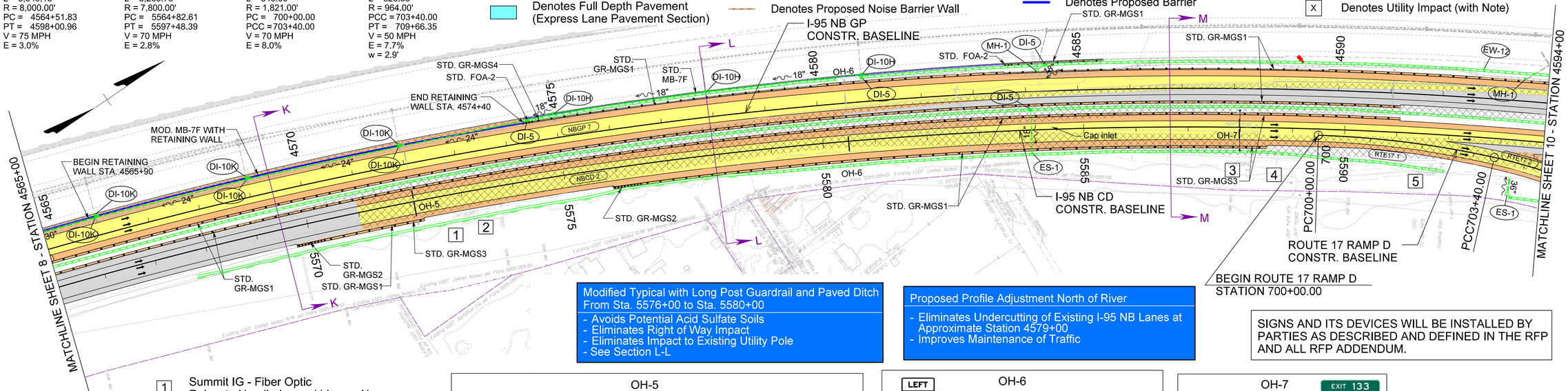
Curve NBCD 2
PI = 5581+39.78
DELTA = 23° 59' 21.00" (RT)
D = 0° 44' 04"
T = 1,657.17'
L = 3,265.78'
R = 7,800.00'
PC = 5564+82.61
PT = 5597+48.39
V = 70 MPH
E = 2.8%

Curve RTE17 1
PI = 701+70.50
DELTA = 10° 41' 51.83" (RT)
D = 3° 08' 47"
T = 170.50'
L = 340.00'
R = 1,821.00'
PC = 700+00.00
PCC = 703+40.00
V = 70 MPH
E = 8.0%

Curve RTE17 2
PI = 706+64.68
DELTA = 37° 13' 38.12" (RT)
D = 5° 56' 37"
T = 324.68'
L = 626.35'
R = 964.00'
PCC = 703+40.00
PT = 709+66.35
V = 50 MPH
E = 7.7%
w = 2.9'

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Proposed Shoulder
- Denotes Mill and Overlay/Buildup
- Denotes Proposed Bridge
- Denotes Full Depth Pavement (Express Lane Pavement Section)
- Denotes Proposed Shoulder (Express Lane Pavement Section)
- Denotes Proposed Sidewalk
- Denotes Reduction in Right of Way and/or Limited Access from RFP Plans
- Denotes Proposed Water Quality Grass Swales
- Denotes Proposed Concrete Ditch
- Denotes Proposed Noise Barrier Wall
- Denotes Proposed Right of Way and/or Limited Access
- Denotes Proposed Right of Way and/or Limited Access from RFP Plans
- Denotes Existing Right of Way and/or Existing Limited Access
- Denotes Proposed Guardrail
- Denotes Proposed Barrier
- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Overhead Span or Cantilever Sign Structure By Others
- Denotes Proposed Signal
- X Denotes Utility Impact (with Note)



Modified Typical with Long Post Guardrail and Paved Ditch From Sta. 5576+00 to Sta. 5580+00
- Avoids Potential Acid Sulfate Soils
- Eliminates Right of Way Impact
- Eliminates Impact to Existing Utility Pole
- See Section L-L

Proposed Profile Adjustment North of River
- Eliminates Undercutting of Existing I-95 NB Lanes at Approximate Station 4579+00
- Improves Maintenance of Traffic

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

2 VDOT ITS - Underground Electrical
Relocate Facilities and Handholes as Necessary

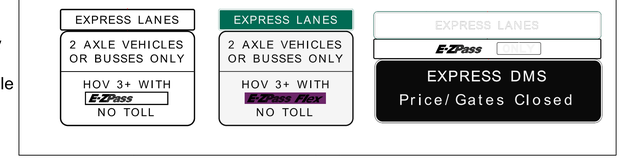
3 VDOT ITS - Conduit Power
Relocate Overheight Sensor and Power Handhole

4 Dominion Energy - 3 Phase OH Power
Replace Distribution Pole with Taller Pole for Required Clearance

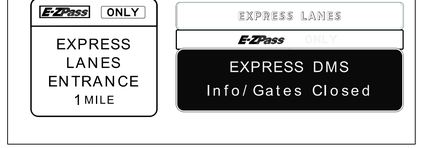
5 VDOT ITS - Power/Communications
Relocate Overheight Sign and Power Service

SCALE 0 100' 200'

OH-5

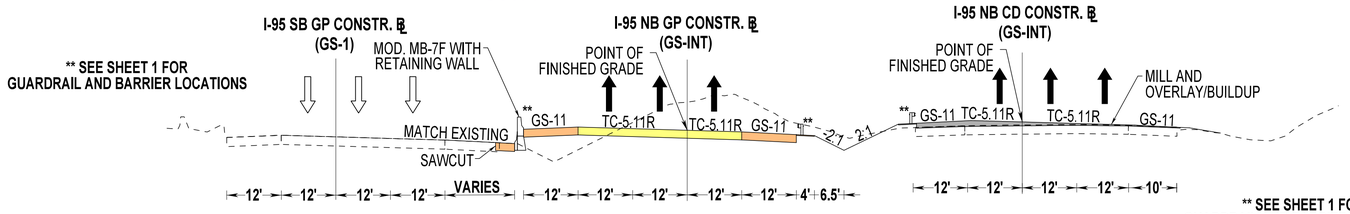


OH-6

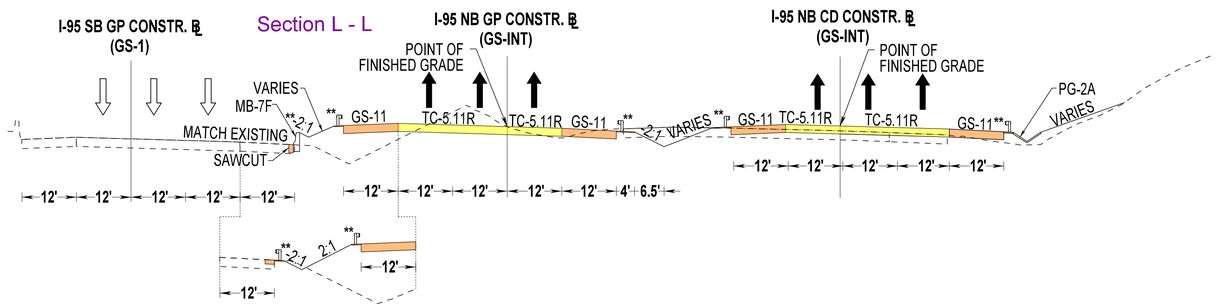


OH-7

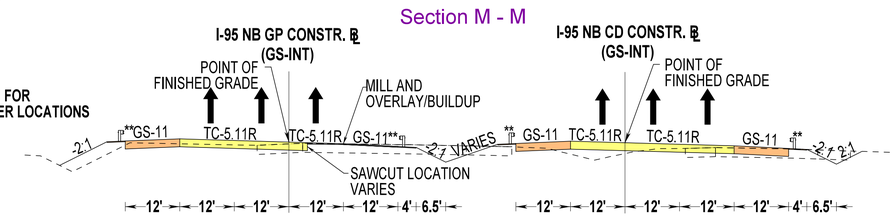
Section K - K



Section L - L



Section M - M



** SEE SHEET 1 FOR GUARDRAIL AND BARRIER LOCATIONS

TYPICAL SECTIONS

NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER: WAGMAN — General Construction | Heavy Civil | Geotechnical

DESIGNED BY: JMT

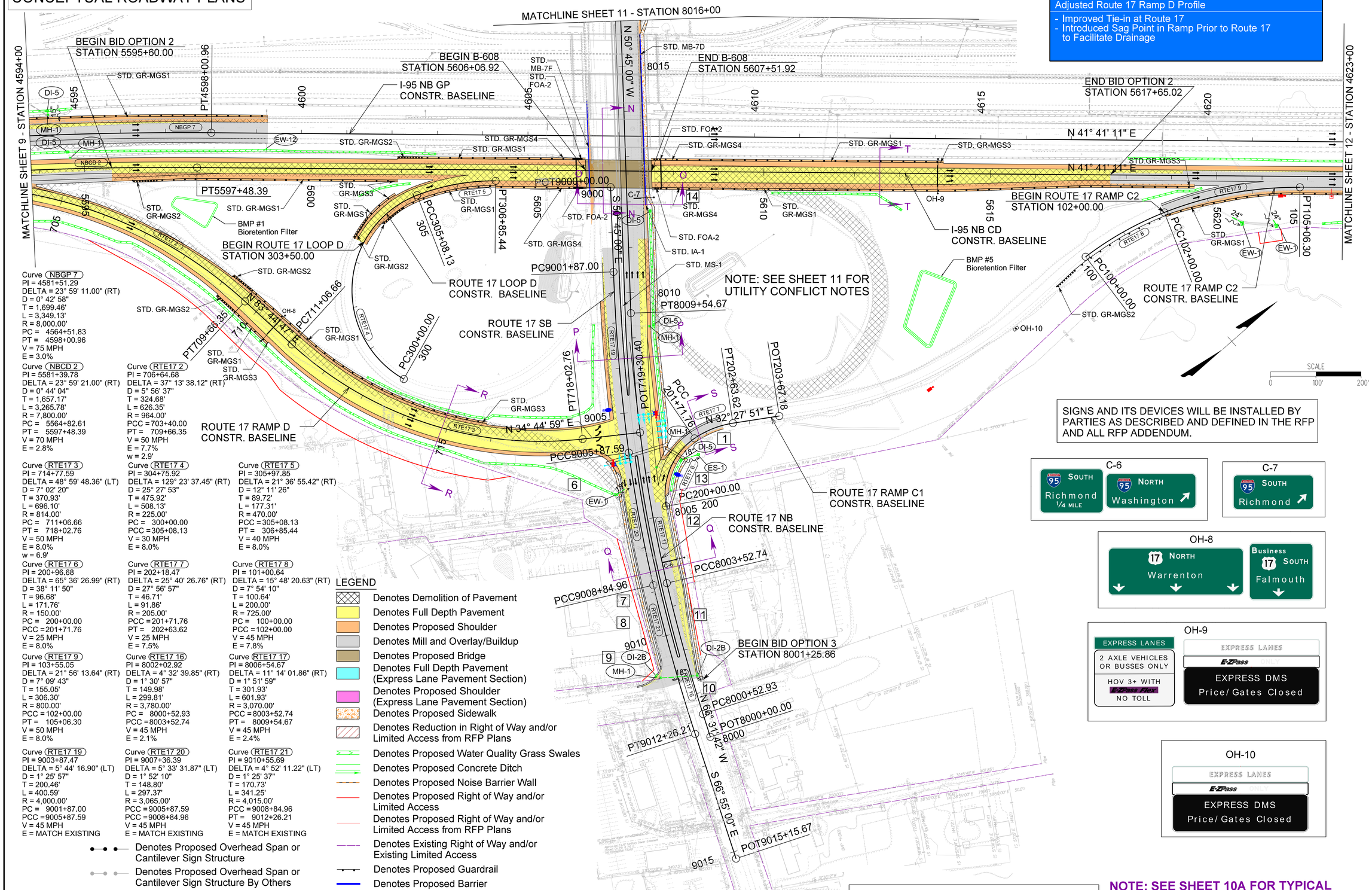
STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO. 9

PAGE NO. 66

CONCEPTUAL ROADWAY PLANS



Adjusted Route 17 Ramp D Profile
- Improved Tie-in at Route 17
- Introduced Sag Point in Ramp Prior to Route 17 to Facilitate Drainage

Curve (NBGP 7)
PI = 4581+51.29
DELTA = 23° 59' 11.00" (RT)
D = 0° 42' 58"
T = 1,699.46'
L = 3,349.13'
R = 8,000.00'
PC = 4564+51.83
PT = 4598+00.96
V = 75 MPH
E = 3.0%

Curve (NBCD 2)
PI = 5581+39.78
DELTA = 23° 59' 21.00" (RT)
D = 0° 44' 04"
T = 1,657.17'
L = 3,265.78'
R = 7,800.00'
PC = 5564+82.61
PT = 5597+48.39
V = 70 MPH
E = 2.8%

Curve (RTE17 2)
PI = 706+64.68
DELTA = 37° 13' 38.12" (RT)
D = 5° 56' 37"
T = 324.68'
L = 626.35'
R = 964.00'
PCC = 703+40.00
PT = 709+66.35
V = 50 MPH
E = 7.7%
w = 2.9'

Curve (RTE17 3)
PI = 714+77.59
DELTA = 48° 59' 48.36" (LT)
D = 7° 02' 20"
T = 370.93'
L = 696.10'
R = 814.00'
PC = 711+06.66
PT = 718+02.76
V = 50 MPH
E = 8.0%
w = 6.9'

Curve (RTE17 4)
PI = 304+75.92
DELTA = 129° 23' 37.45" (RT)
D = 25° 27' 53"
T = 475.92'
L = 508.13'
R = 225.00'
PC = 300+00.00
PCC = 305+08.13
V = 30 MPH
E = 8.0%

Curve (RTE17 5)
PI = 305+97.85
DELTA = 21° 36' 55.42" (RT)
D = 12° 11' 26"
T = 89.72'
L = 177.31'
R = 470.00'
PCC = 305+08.13
PT = 306+85.44
V = 40 MPH
E = 8.0%

Curve (RTE17 6)
PI = 200+96.68
DELTA = 65° 36' 26.99" (RT)
D = 38° 11' 50"
T = 96.68'
L = 171.76'
R = 150.00'
PC = 200+00.00
PCC = 201+71.76
V = 25 MPH
E = 8.0%

Curve (RTE17 7)
PI = 202+18.47
DELTA = 25° 40' 26.76" (RT)
D = 27° 56' 57"
T = 46.71'
L = 91.86'
R = 205.00'
PCC = 201+71.76
PT = 202+63.62
V = 25 MPH
E = 7.5%

Curve (RTE17 8)
PI = 101+00.64
DELTA = 15° 48' 20.63" (RT)
D = 7° 54' 10"
T = 100.64'
L = 200.00'
R = 725.00'
PC = 100+00.00
PCC = 102+00.00
V = 45 MPH
E = 7.8%

Curve (RTE17 9)
PI = 103+55.05
DELTA = 21° 56' 13.64" (RT)
D = 7° 09' 43"
T = 155.05'
L = 306.30'
R = 800.00'
PCC = 102+00.00
PT = 105+06.30
V = 50 MPH
E = 8.0%

Curve (RTE17 16)
PI = 8002+02.92
DELTA = 4° 32' 39.85" (RT)
D = 1° 30' 57"
T = 149.98'
L = 299.81'
R = 3,780.00'
PC = 8000+52.93
PCC = 8003+52.74
V = 45 MPH
E = 2.1%

Curve (RTE17 17)
PI = 8006+54.67
DELTA = 11° 14' 01.86" (RT)
D = 1° 51' 59"
T = 301.93'
L = 601.93'
R = 3,070.00'
PCC = 8003+52.74
PT = 8009+54.67
V = 45 MPH
E = 2.4%

Curve (RTE17 19)
PI = 9003+87.47
DELTA = 5° 44' 16.90" (LT)
D = 1° 25' 57"
T = 200.46'
L = 400.59'
R = 4,000.00'
PC = 9001+87.00
PCC = 9005+87.59
V = 45 MPH
E = MATCH EXISTING

Curve (RTE17 20)
PI = 9007+36.39
DELTA = 5° 33' 31.87" (LT)
D = 1° 52' 10"
T = 148.80'
L = 297.37'
R = 3,065.00'
PCC = 9005+87.59
PCC = 9008+84.96
V = 45 MPH
E = MATCH EXISTING

Curve (RTE17 21)
PI = 9010+55.69
DELTA = 4° 52' 11.22" (LT)
D = 1° 25' 37"
T = 170.73'
L = 341.25'
R = 4,015.00'
PCC = 9008+84.96
PT = 9012+26.21
V = 45 MPH
E = MATCH EXISTING

LEGEND
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Proposed Shoulder
- Denotes Mill and Overlay/Buildup
- Denotes Proposed Bridge
- Denotes Full Depth Pavement (Express Lane Pavement Section)
- Denotes Proposed Shoulder (Express Lane Pavement Section)
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- Denotes Proposed Light Pole
- Denotes Proposed Pole Mounted Camera
- Denotes Proposed Overhead Span or Cantilever Sign Structure
- Denotes Proposed Overhead Span or Cantilever Sign Structure By Others
- Denotes Proposed Signal
- X — Denotes Utility Impact (with Note)

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

C-6
South 95 Richmond 1/4 MILE
North 95 Washington

C-7
South 95 Richmond

OH-8
North 17 Warrenton
Business South 17 Falmouth

OH-9
EXPRESS LANES
2 AXLE VEHICLES OR BUSSES ONLY
HOV 3+ WITH E-ZPass Flex NO TOLL
EXPRESS LANES E-ZPass ONLY
EXPRESS DMS Price/ Gates Closed

OH-10
EXPRESS LANES E-ZPass ONLY
EXPRESS DMS Price/ Gates Closed

NOTE: SEE SHEET 10A FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

NOTE: SEE SHEET 10A FOR TYPICAL SECTIONS N-N, O-O, P-P, Q-Q, R-R, S-S AND T-T.

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

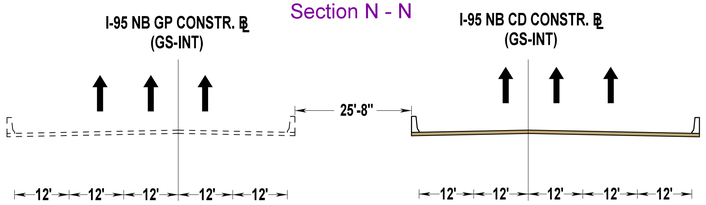
SHEET NO.
10

PAGE NO.
67

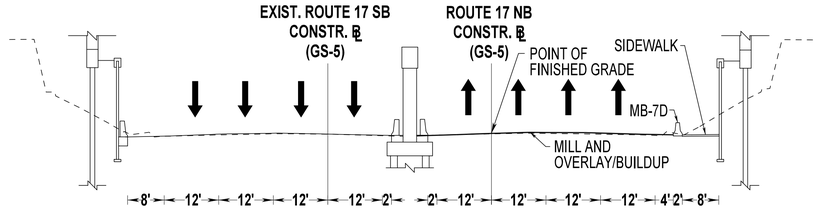
CONCEPTUAL ROADWAY PLANS

TYPICAL SECTIONS

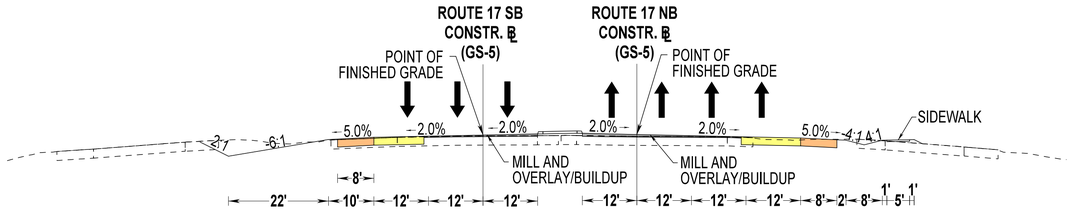
Section N - N



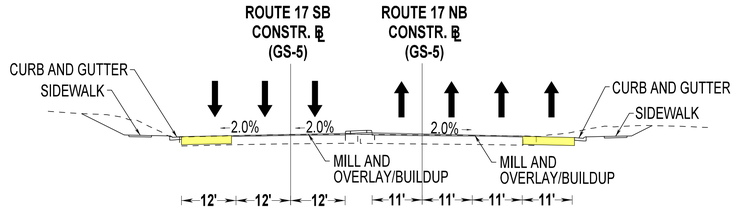
Section O - O



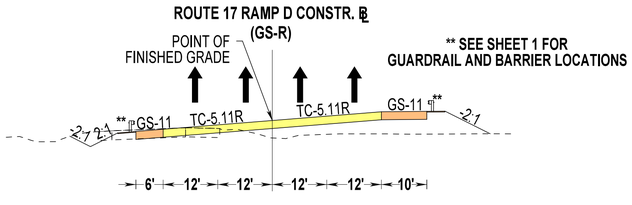
Section P - P



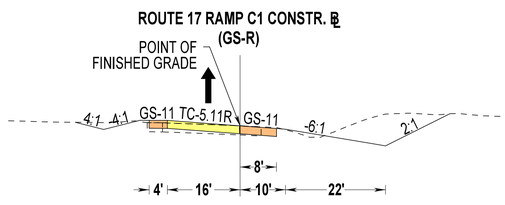
Section Q - Q



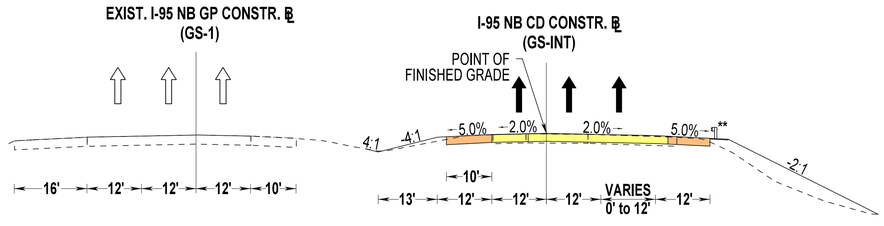
Section R - R



Section S - S



Section T - T



LEGEND - PAVEMENT DESIGN: ALTERNATIVE 1: STANDARD FLEXIBLE PAVEMENT

Denotes Full Depth Pavement

Denotes Proposed Shoulder

MAINLINE DESIGN: I-95 NB CD and NB GP Lanes, Route 3 Ramp C, I-95 Slip Ramp, Route 17 and Route 17 Loops and Ramps

SHOULDER DESIGN: Extend mainline design through shoulder area

Surface:	2 inches Asphalt Concrete Type, SM-12.5E
Intermediate:	3 inches Asphalt Concrete Type, IM-19.0D
Base:	8 inches Asphalt Concrete Type, BM-25.0A
Drainage:	2 inches Open Graded Drainage Layer (OGDL)
Subbase:	6 inches Aggregate Base Material, Type I, 21A

Denotes Full Depth Pavement (Express Lane Pavement Section)

Denotes Proposed Shoulder (Express Lane Pavement Section)

MAINLINE DESIGN: I-95 NB CD Ramp (North of Route 17) to Express Lanes (Sta. 4635+00 to Sta. 4680+00), to include the CD Ramp entering NB General Purpose Lanes

SHOULDER DESIGN: Extend mainline design through shoulder area

Surface:	2 inches Asphalt Concrete Type, SM-12.5E
Intermediate:	3 inches Asphalt Concrete Type, IM-19.0D
Base:	11 inches Asphalt Concrete Type, BM-25.0A
Drainage:	4 inches Aggregate Base Materials, Type I, Size No. 21B
Subbase:	6 inches Aggregate Base Material, Type I, 21A

Denotes Mill and Overlay/Buildup

MILLING AND OVERLAY/BUILDUP:
All Locations Except Route 17

Milling:	2 inches depth of milling required
Overlay:	2 inches Asphalt Concrete Type, SM-12.5E

MILLING AND OVERLAY/BUILDUP:
Route 17

Milling:	1.5 inches depth of milling required
Overlay:	1.5 inches Asphalt Concrete Type, SM-12.5E

Underdrains will be provided and meet RFP requirements

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
10A

PAGE NO.
68

CONCEPTUAL ROADWAY PLANS

Curve (RTE17 10)
PI = 600+81.09
DELTA = 12° 05' 09.42" (RT)
D = 7° 28' 48"
T = 81.09'
L = 161.58'
R = 766.00'
PC = 600+00.00
PCC = 601+61.58
V = 45 MPH
E = 7.7%
w = 3.5'

Curve (RTE17 11)
PI = 602+79.28
DELTA = 13° 25' 31.62" (RT)
D = 5° 43' 46"
T = 117.70'
L = 234.32'
R = 1,000.00'
PCC = 601+61.58
PRC = 603+95.90
V = 45 MPH
E = 6.8%
w = 2.6'

Curve (RTE17 12)
PI = 606+22.14
DELTA = 26° 15' 28.82" (LT)
D = 5° 54' 24"
T = 226.24'
L = 444.54'
R = 970.00'
PRC = 603+95.90
PCC = 608+40.44
V = 45 MPH
E = 7.0%
w = 2.7'

Curve (RTE17 13)
PI = 609+48.99
DELTA = 16° 28' 17.01" (LT)
D = 7° 38' 22"
T = 108.55'
L = 215.61'
R = 750.00'
PCC = 608+40.44
PT = 610+56.05
V = 45 MPH
E = 7.8%
w = 5.3'

Curve (RTE17 14)
PI = 11+08.76
DELTA = 24° 32' 38.15" (RT)
D = 11° 27' 33"
T = 108.76'
L = 214.19'
R = 500.00'
PC = 10+00.00
PCC = 12+14.19
V = 35 MPH
E = 7.2%

Curve (RTE17 15)
PI = 13+02.83
DELTA = 23° 50' 11.49" (RT)
D = 13° 38' 31"
T = 88.65'
L = 174.73'
R = 420.00'
PCC = 12+14.19
PT = 13+88.92
V = 35 MPH
E = 7.7%

Curve (RTE17 18)
PI = 8032+89.39
DELTA = 5° 55' 36.12" (RT)
D = 1° 35' 14"
T = 186.88'
L = 373.42'
R = 3,610.00'
PC = 8031+02.51
PT = 8034+75.93
V = 45 MPH
E = 2.2%

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

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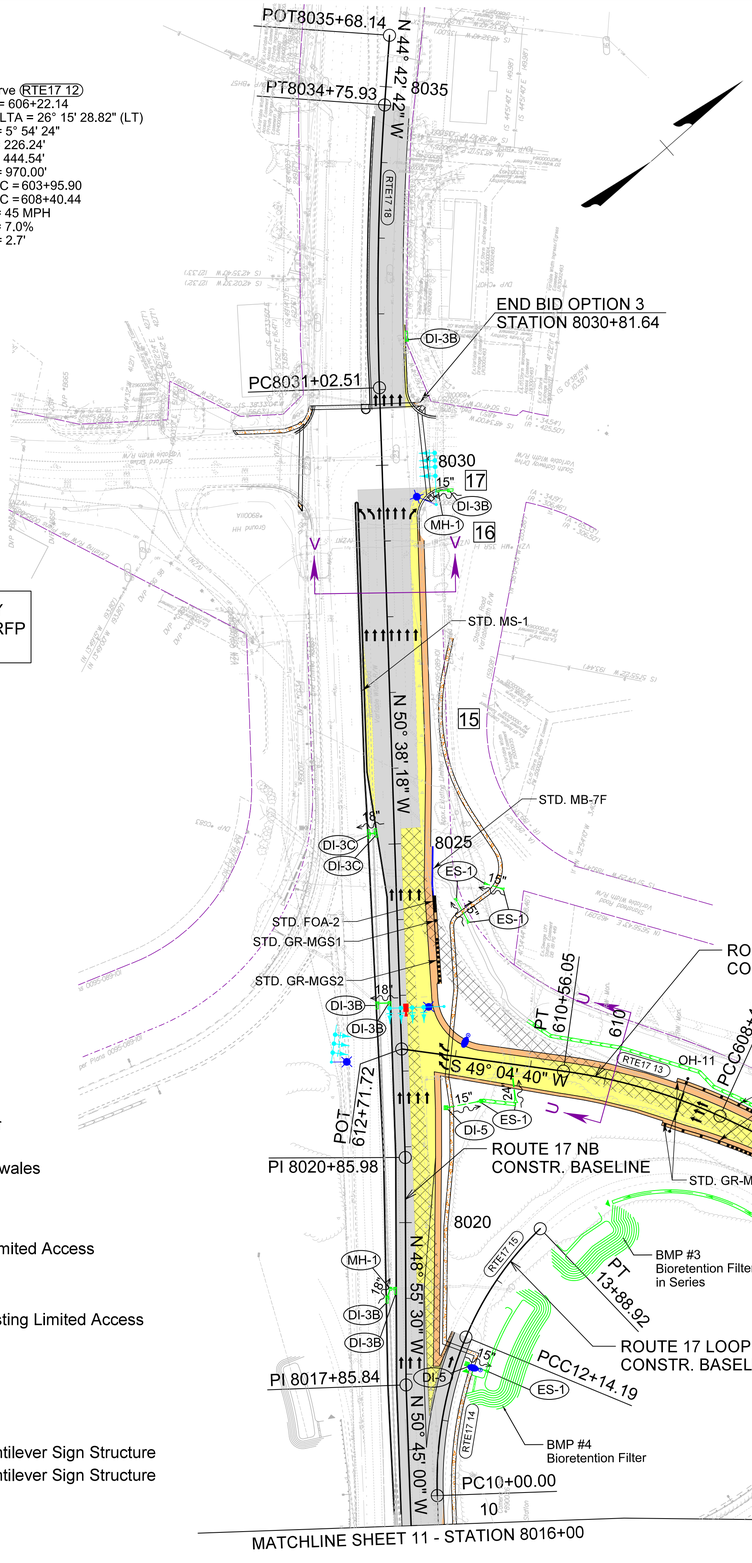
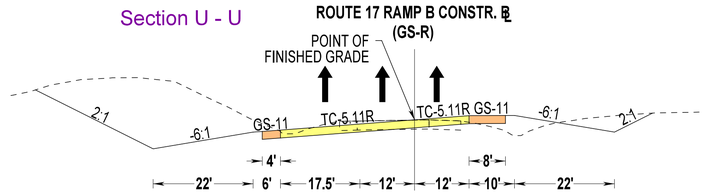
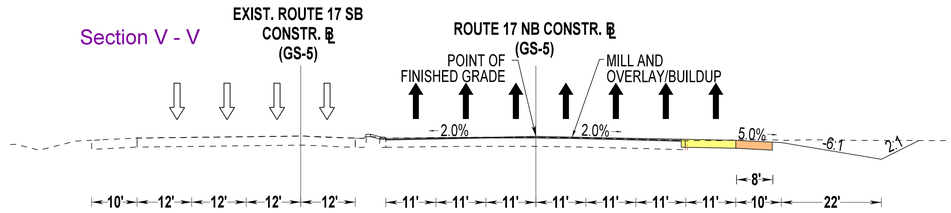


TYPICAL SECTIONS

Section U - U



Section V - V



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

1. Summit IG - Fiber Optic
   Relocate Handholes and Line as Necessary
2. VDOT ITS - Underground Electrical
   Relocate Facilities and Handholes as Necessary
5. Dominion Energy - 3 Phase OH Power
   Replace Distribution Pole with Taller Pole for Required Clearance
6. VDOT - Power Service
   Remove Service Pole and Flashing Sign
7. Columbia Gas - 2" Gas Service
   Relocate Service Drops as Necessary
8. Verizon Virginia - Telephone Pole
   Relocate with Taller Poles for Grade Cut
9. VDOT - Traffic Signal
   Relocate Control Box as Necessary
10. VDOT ITS - Communication
    Relocate Control Box as Necessary
11. VDOT Lift Pole - Power
    Relocate Poles as Necessary
12. Stafford Utilities - 8" Sanitary Force Main
    Extend 8" Sanitary Force Main into the Shoulder
13. Dominion Energy - Power Pole
    Relocate Distribution Pole
14. VDOT - Power Service
    Relocate Handhole
15. Stafford Utilities - 12" Water Main
    Relocate as Necessary
16. Verizon Virginia - Telephone
    Relocate Handhole
17. VDOT - Traffic Signal System
    Relocate Box and Signal Pole

SCALE
0 100' 200'

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I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
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CONCEPTUAL ROADWAY PLANS

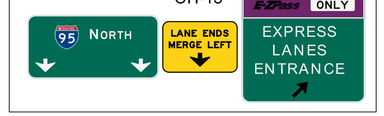
Proposed MSE Wall to Eliminate Box Culvert Extension

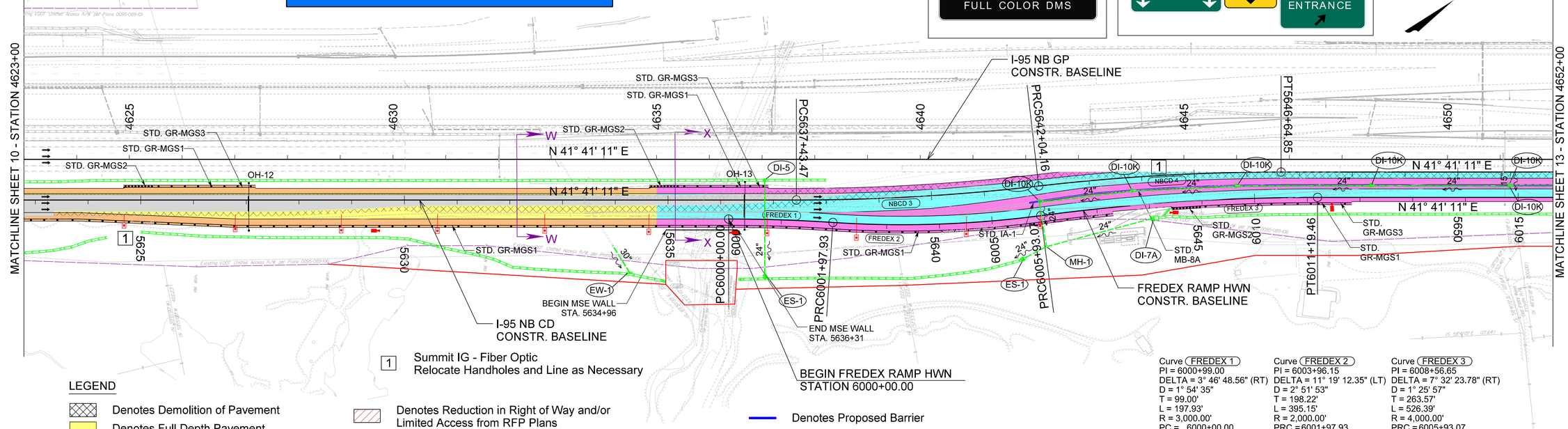
- Eliminates Box Culvert and Pipe Extension
- Minimizes Environmental Impacts to Streams and Wetlands
- See Section X - X

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

OH-12

OH-13





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- Denotes Proposed Overhead Span or Cantilever Sign Structure By Others
- Denotes Proposed Signal
- Denotes Proposed Vertical Swing Gate (Foundation by Wagman Team, Gate by Others)
- X Denotes Utility Impact (with Note)

Curve FREDEX 1
PI = 6000+99.00
DELTA = 3° 46' 48.56" (RT)
D = 1° 54' 35"
T = 99.00'
L = 197.93'
R = 3,000.00'
PC = 6000+00.00
PRC = 6001+97.93
V = 65 MPH
E = 5.6%

Curve FREDEX 2
PI = 6003+96.15
DELTA = 11° 19' 12.35" (LT)
D = 1° 51' 53"
T = 198.22'
L = 395.15'
R = 2,000.00'
PRC = 6001+97.93
PRC = 6005+93.07
V = 55 MPH
E = 5.9%

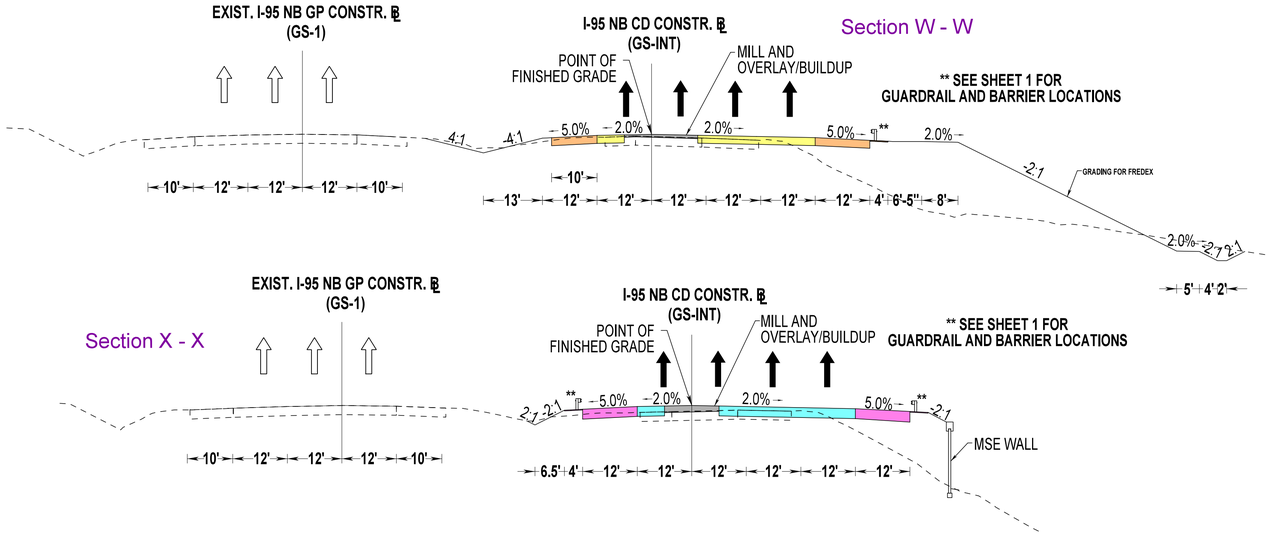
Curve FREDEX 3
PI = 6008+56.65
DELTA = 7° 32' 23.78" (RT)
D = 1° 25' 57"
T = 263.57'
L = 526.39'
R = 4,000.00'
PRC = 6005+93.07
PT = 6011+19.46
V = 55 MPH
E = 3.4%

Curve NBCD 3
PI = 5639+74.07
DELTA = 6° 35' 55.99" (LT)
D = 1° 25' 57"
T = 230.60'
L = 460.69'
R = 4,000.00'
PC = 5637+43.47
PRC = 5642+04.16
V = 70 MPH
E = 5.0%

Curve NBCD 4
PI = 5644+34.76
DELTA = 6° 35' 55.99" (RT)
D = 1° 25' 57"
T = 230.60'
L = 460.69'
R = 4,000.00'
PRC = 5642+04.16
PT = 5646+64.85
V = 70 MPH
E = 5.0%

SCALE
0 100' 200'

TYPICAL SECTIONS



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

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DESIGNED BY
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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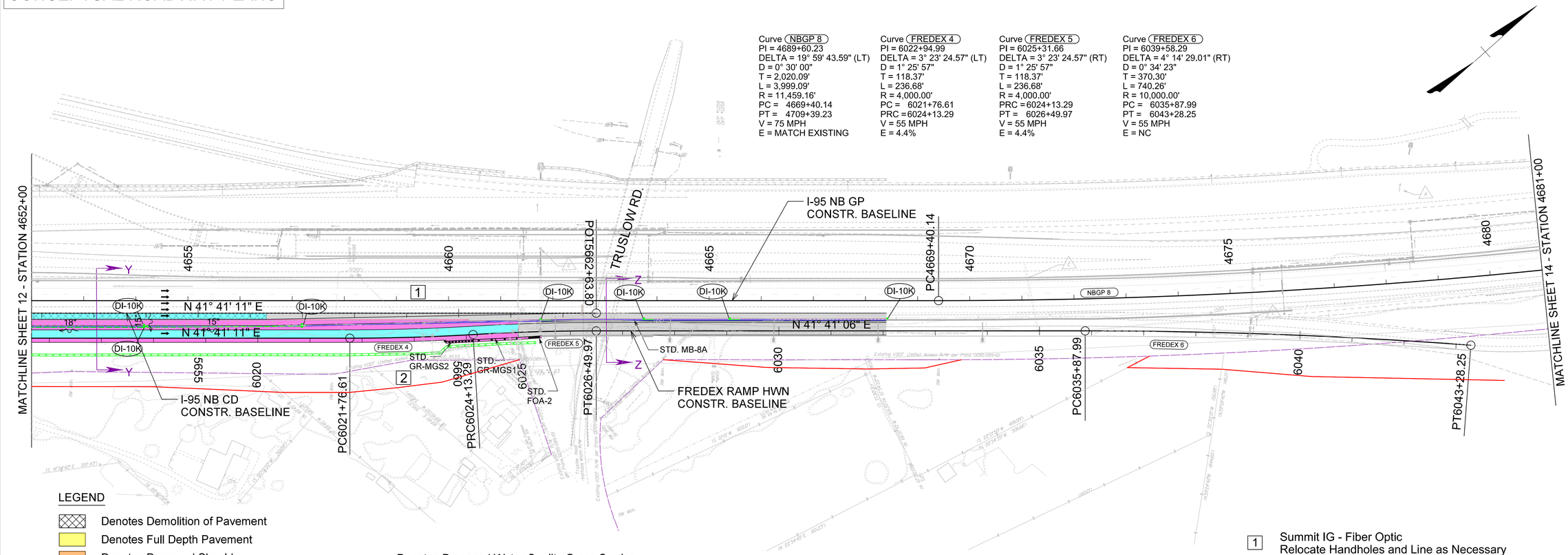
CONCEPTUAL ROADWAY PLANS

Curve NBGP 8
PI = 4689+60.23
DELTA = 19° 59' 43.59" (LT)
D = 0° 30' 00"
T = 2,020.09'
L = 3,999.09'
R = 11,459.16'
PC = 4669+40.14
PT = 4709+39.23
V = 75 MPH
E = MATCH EXISTING

Curve FREDEX 4
PI = 6022+94.99
DELTA = 3° 23' 24.57" (LT)
D = 1° 25' 57"
T = 118.37'
L = 236.68'
R = 4,000.00'
PC = 6021+76.61
PRC = 6024+13.29
V = 55 MPH
E = 4.4%

Curve FREDEX 5
PI = 6025+31.66
DELTA = 3° 23' 24.57" (RT)
D = 1° 25' 57"
T = 118.37'
L = 236.68'
R = 4,000.00'
PRC = 6024+13.29
PT = 6026+49.97
V = 55 MPH
E = 4.4%

Curve FREDEX 6
PI = 6039+58.29
DELTA = 4° 14' 29.01" (RT)
D = 0° 34' 23"
T = 370.30'
L = 740.26'
R = 10,000.00'
PC = 6035+87.99
PT = 6043+28.25
V = 55 MPH
E = NC



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- X Denotes Utility Impact (with Note)

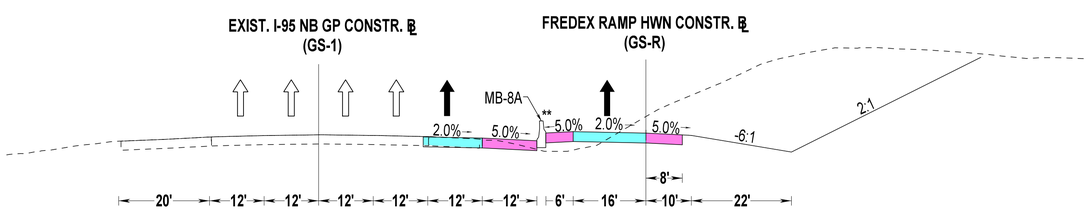
1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

2 VDOT ITS - Underground Electrical
Relocate Facilities and Handholes as Necessary

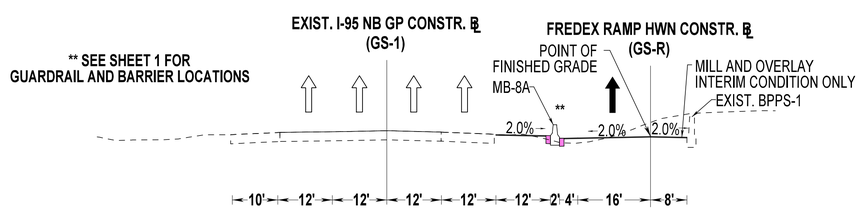
SCALE 0 100' 200'

TYPICAL SECTIONS

Section Y - Y



Section Z - Z



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

DESIGN BUILDER
WAGMAN
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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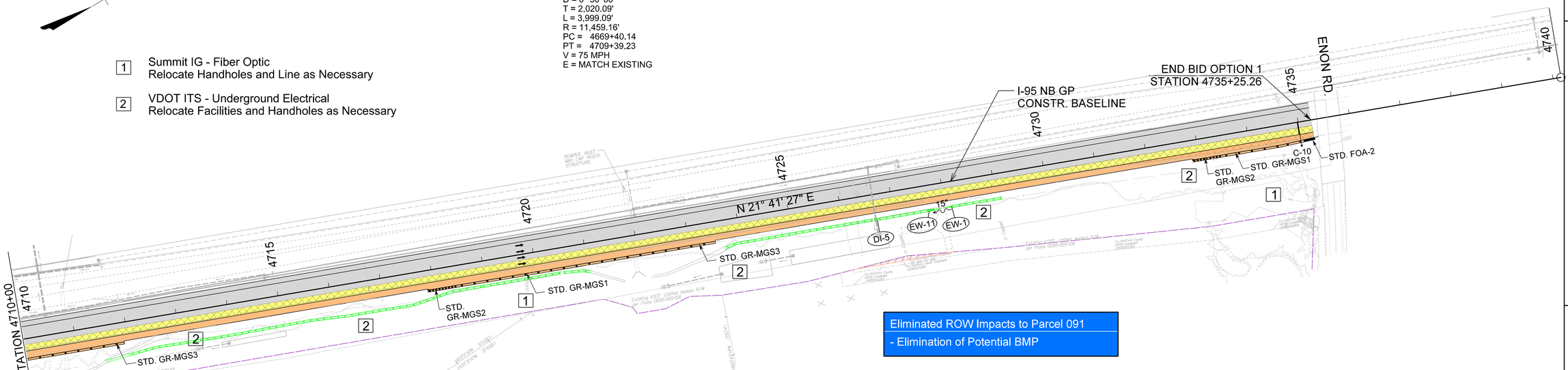
CONCEPTUAL ROADWAY PLANS

SIGNS AND ITS DEVICES WILL BE INSTALLED BY PARTIES AS DESCRIBED AND DEFINED IN THE RFP AND ALL RFP ADDENDUM.

Curve (NBGP 8)
PI = 4689+60.23
DELTA = 19° 59' 43.59" (LT)
D = 0° 30' 00"
T = 2,020.09'
L = 3,999.09'
R = 11,459.16'
PC = 4669+40.14
PT = 4709+39.23
V = 75 MPH
E = MATCH EXISTING

1 Summit IG - Fiber Optic
Relocate Handholes and Line as Necessary

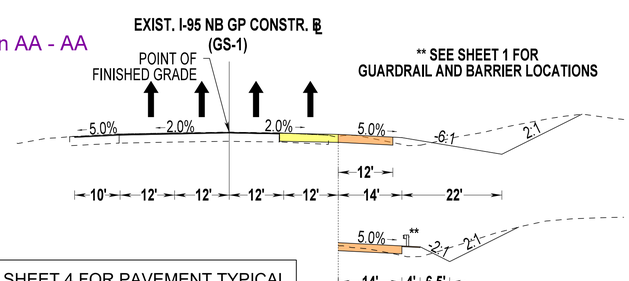
2 VDOT ITS - Underground Electrical
Relocate Facilities and Handholes as Necessary



Eliminated ROW Impacts to Parcel 091
- Elimination of Potential BMP

TYPICAL SECTIONS

Section AA - AA



NOTE: SEE SHEET 4 FOR PAVEMENT TYPICAL SECTION LEGEND AND PAVEMENT DESIGNS

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SCALE
0 100' 200'

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

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I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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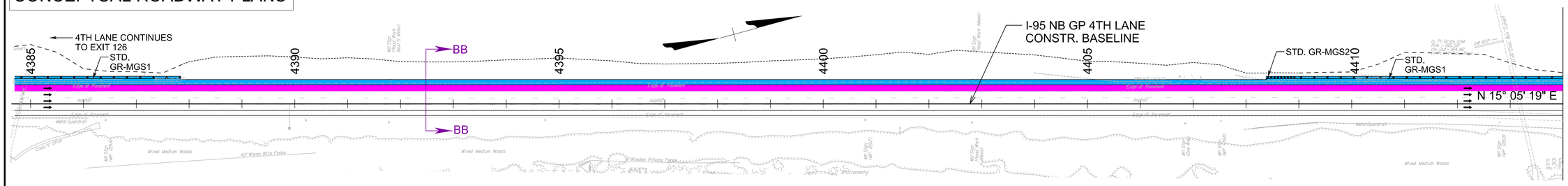
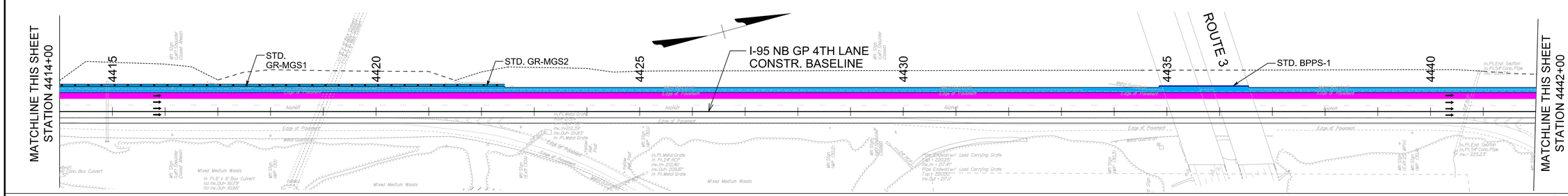
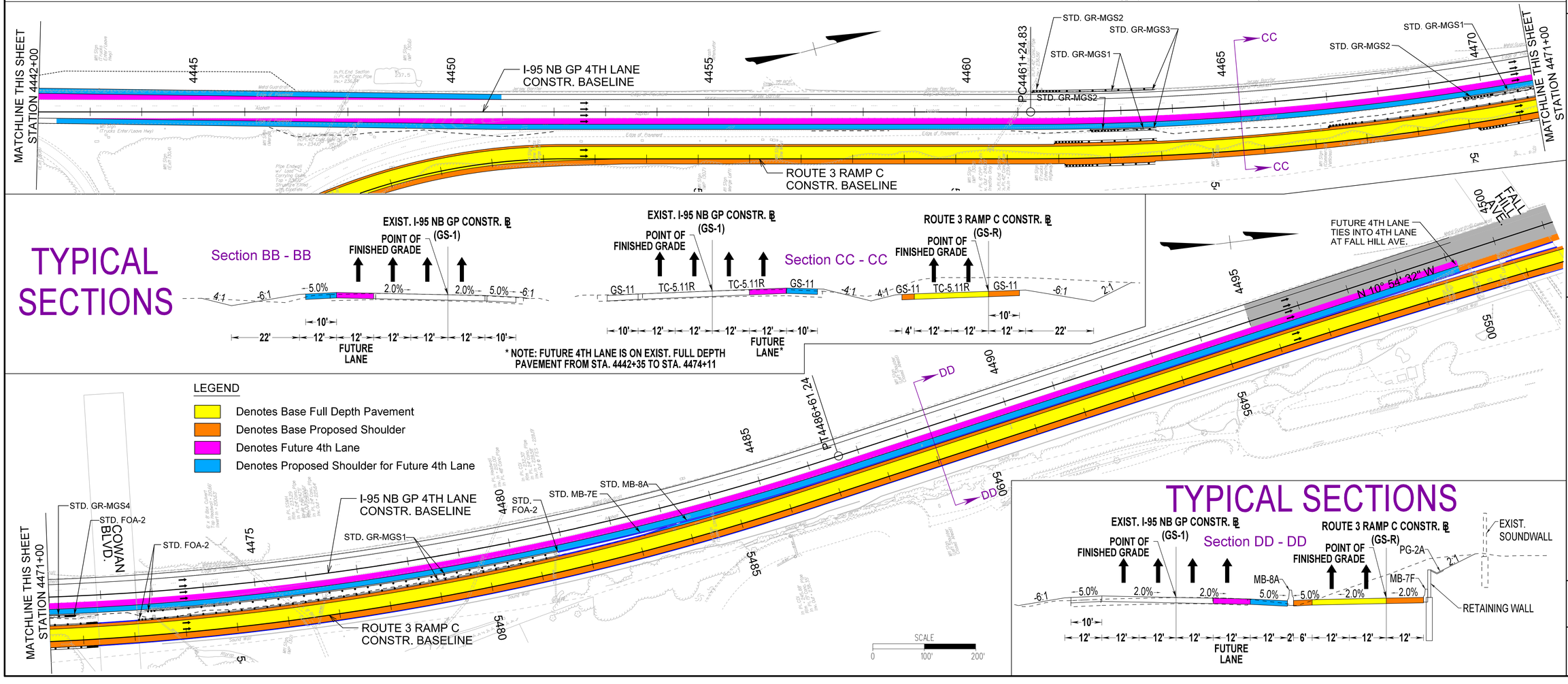
CONCEPTUAL ROADWAY PLANS







TYPICAL SECTIONS

Section BB - BB

Section CC - CC

* NOTE: FUTURE 4TH LANE IS ON EXIST. FULL DEPTH PAVEMENT FROM STA. 4442+35 TO STA. 4474+11

LEGEND

- Denotes Base Full Depth Pavement
- Denotes Base Proposed Shoulder
- Denotes Future 4th Lane
- Denotes Proposed Shoulder for Future 4th Lane

TYPICAL SECTIONS

Section DD - DD

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RAPPAHANNOCK RIVER CROSSING
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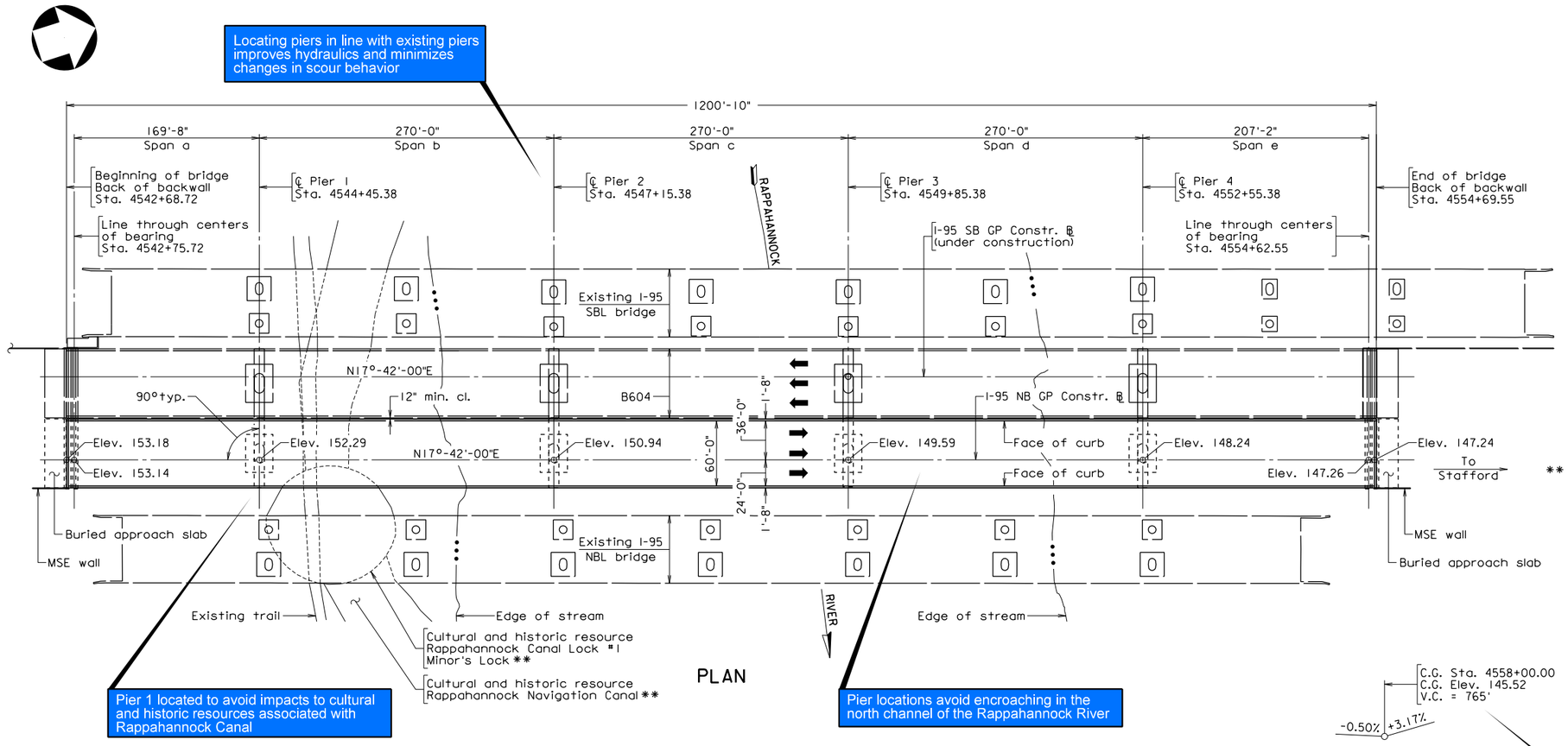
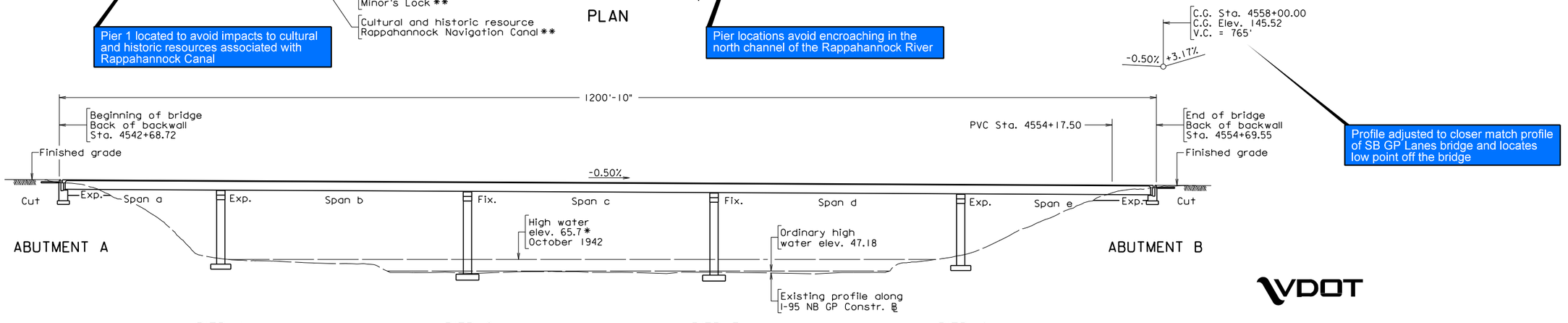
CONCEPTUAL STRUCTURAL PLANS



PLAN



*Elevation taken from 1980 mainline bridge plans (156-04A) dated March 1980 and are assumed to be based on the NGVD29 vertical datum.

DEVELOPED SECTION ALONG I-95 NB GP CONSTR. ℄

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

Width: 60'-0" face-to-face of curbs.

Span layout: 169'-8" - 270'-0" - 270'-0" - 270'-0" - 207'-2" continuous steel plate girder spans.

Capacity: HL-93 loading.

Drainage area: 1.605 sq. mi.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; VDOT Modifications and Additional Foundation Criteria.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

All structural steel, including bearings, shall be ASTM A709 Grade 50W and shall be unpainted.

Bridge No. of existing bridge in SB Lanes is 2900, and existing bridge in NB Lanes is 2901. Plan Nos. are 156-04 through 156-04E.

Plan No. for SB GP Lanes bridge under construction is 299-97.

** Locations depicted are approximate.

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON
I-95 NB GP LANES OVER RAPPAHANNOCK RIVER
STAFFORD CO. - 1.2 MI. S. OF RTE. 17
PROJ. 0095-111-270, B609

Scale: 1" = 60'

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I-95 NORTHBOUND
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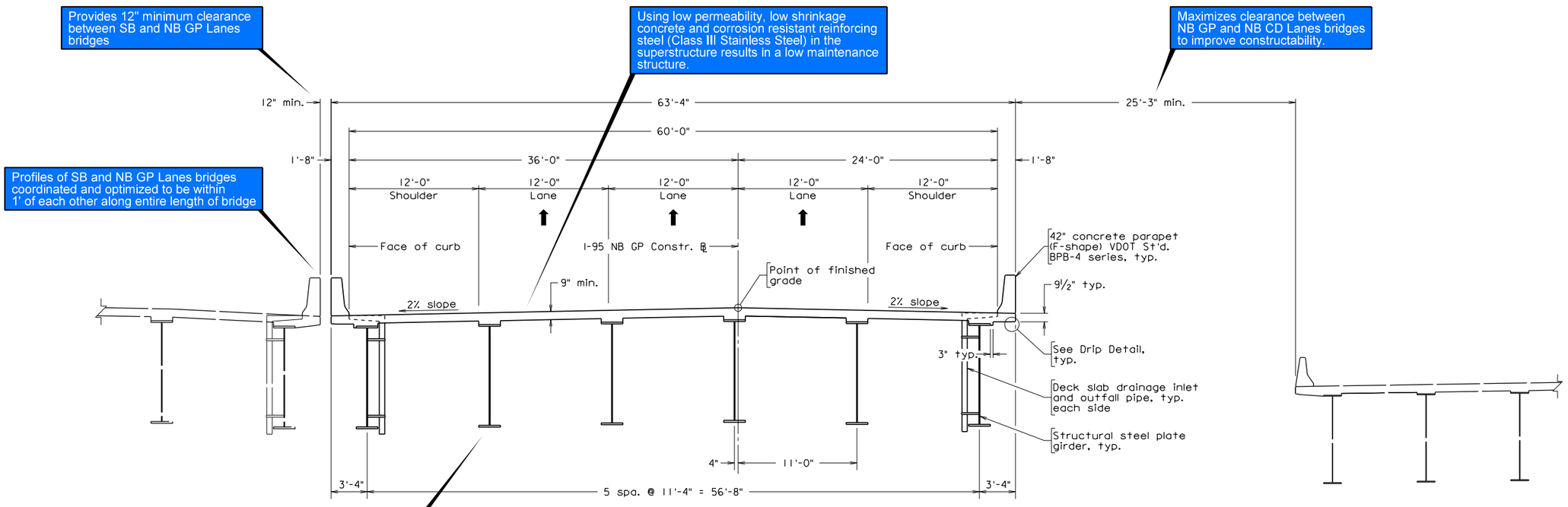
CONCEPTUAL STRUCTURAL PLANS

Provides 12" minimum clearance between SB and NB GP Lanes bridges

Using low permeability, low shrinkage concrete and corrosion resistant reinforcing steel (Class III Stainless Steel) in the superstructure results in a low maintenance structure.

Maximizes clearance between NB GP and NB CD Lanes bridges to improve constructability.

Profiles of SB and NB GP Lanes bridges coordinated and optimized to be within 1' of each other along entire length of bridge

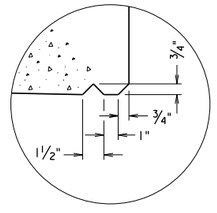


Using continuous structural steel plate girders with weathering steel eliminates the need for paint and results in a low maintenance structure.

B604
PART TRANSVERSE SECTION
(Under Construction)

B609
TRANSVERSE SECTION

EXISTING I-95 NBL BRIDGE
PART TRANSVERSE SECTION



DRIP DETAIL
Not to scale

Scale: 3/16" = 1'-0"

DESIGN BUILDER
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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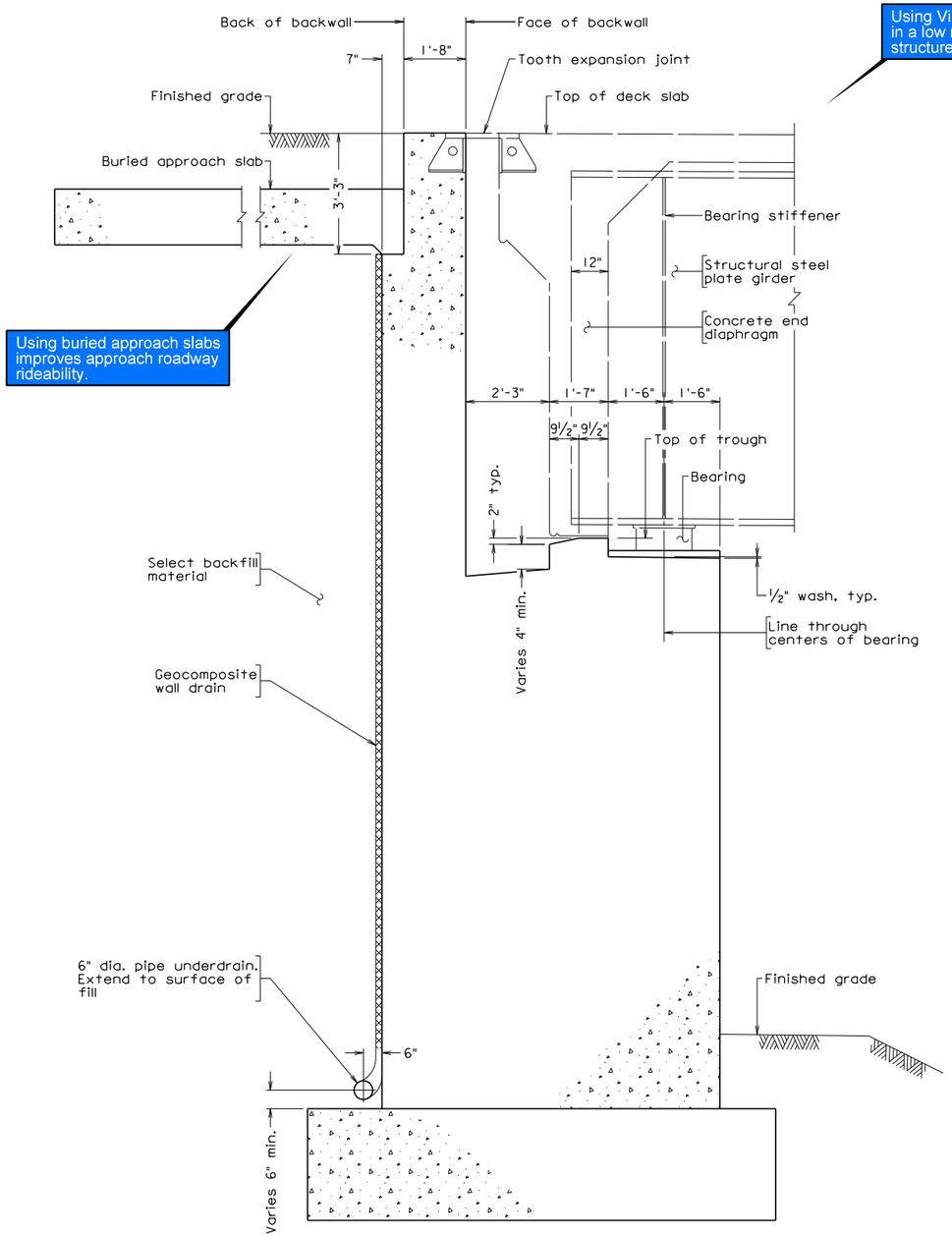
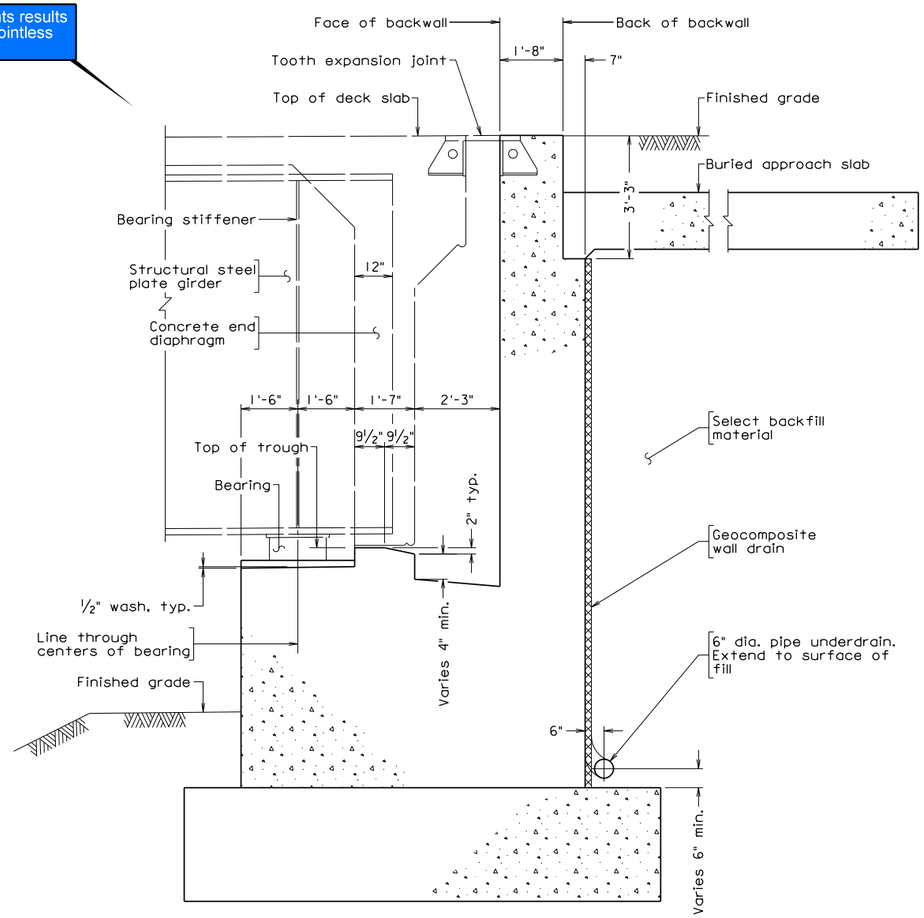
CONCEPTUAL STRUCTURAL PLANS



SECTION THROUGH ABUTMENT A

Using buried approach slabs improves approach roadway rideability.

Using Virginia Abutments results in a low maintenance, jointless structure.



SECTION THROUGH ABUTMENT B

Scale: ½" = 1'-0"

DESIGN BUILDER

WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY

JMT

STATE PROJECT

0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION

I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
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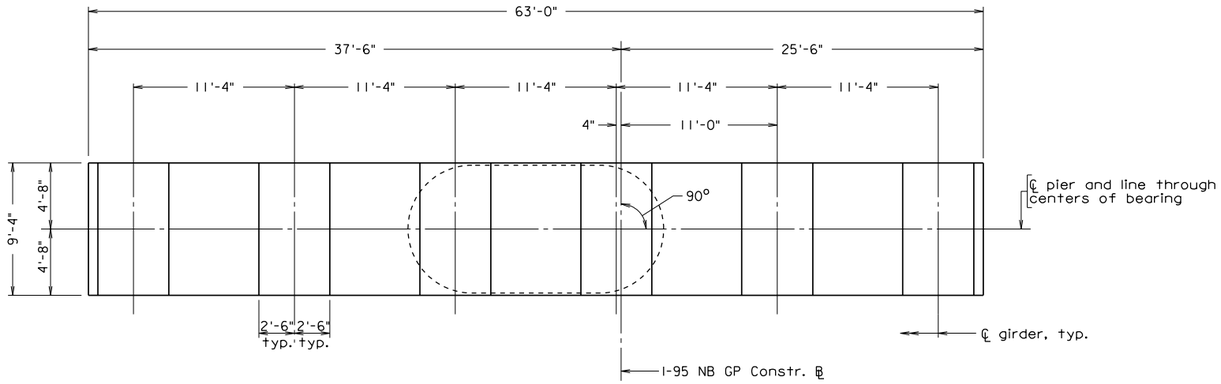
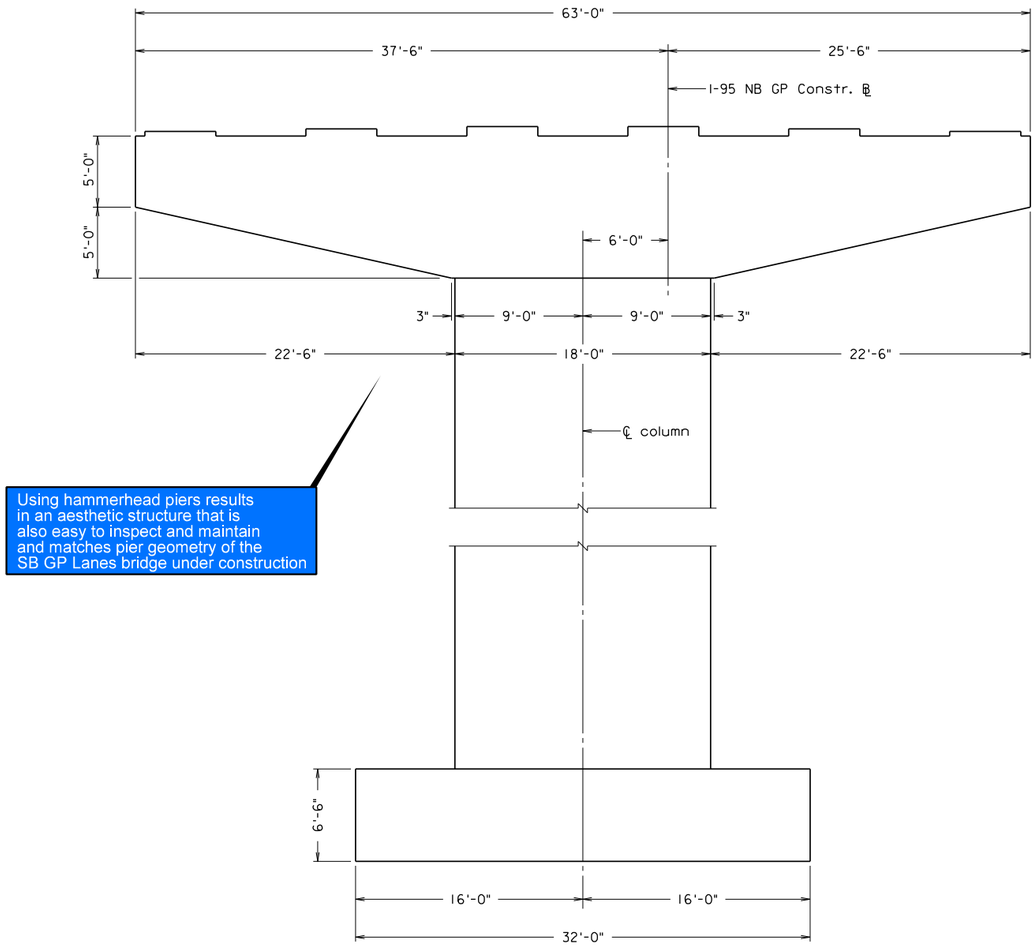
CONCEPTUAL STRUCTURAL PLANS

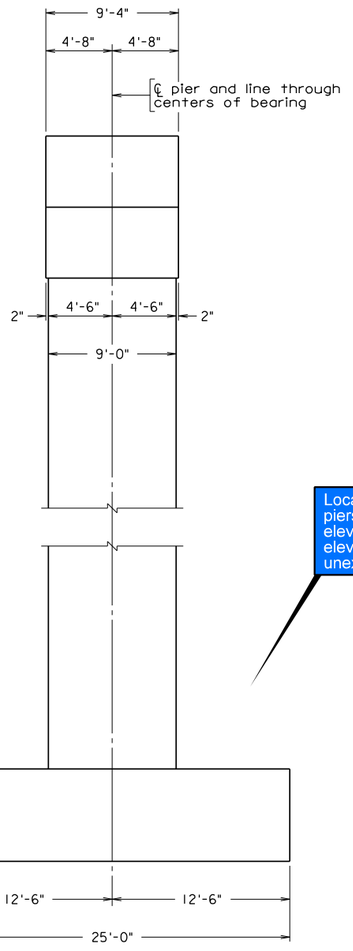


PLAN OF CAP



ELEVATION

Using hammerhead piers results in an aesthetic structure that is also easy to inspect and maintain and matches pier geometry of the SB GP Lanes bridge under construction



END VIEW

Locating piers in line with existing piers and setting bottom of footing elevations similar to existing footing elevations minimizes risk related to unexpected geologic conditions.

Scale: 3/16" = 1'-0"

DESIGN BUILDER

WAGMAN
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JMT

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VIRGINIA DEPARTMENT OF TRANSPORTATION

I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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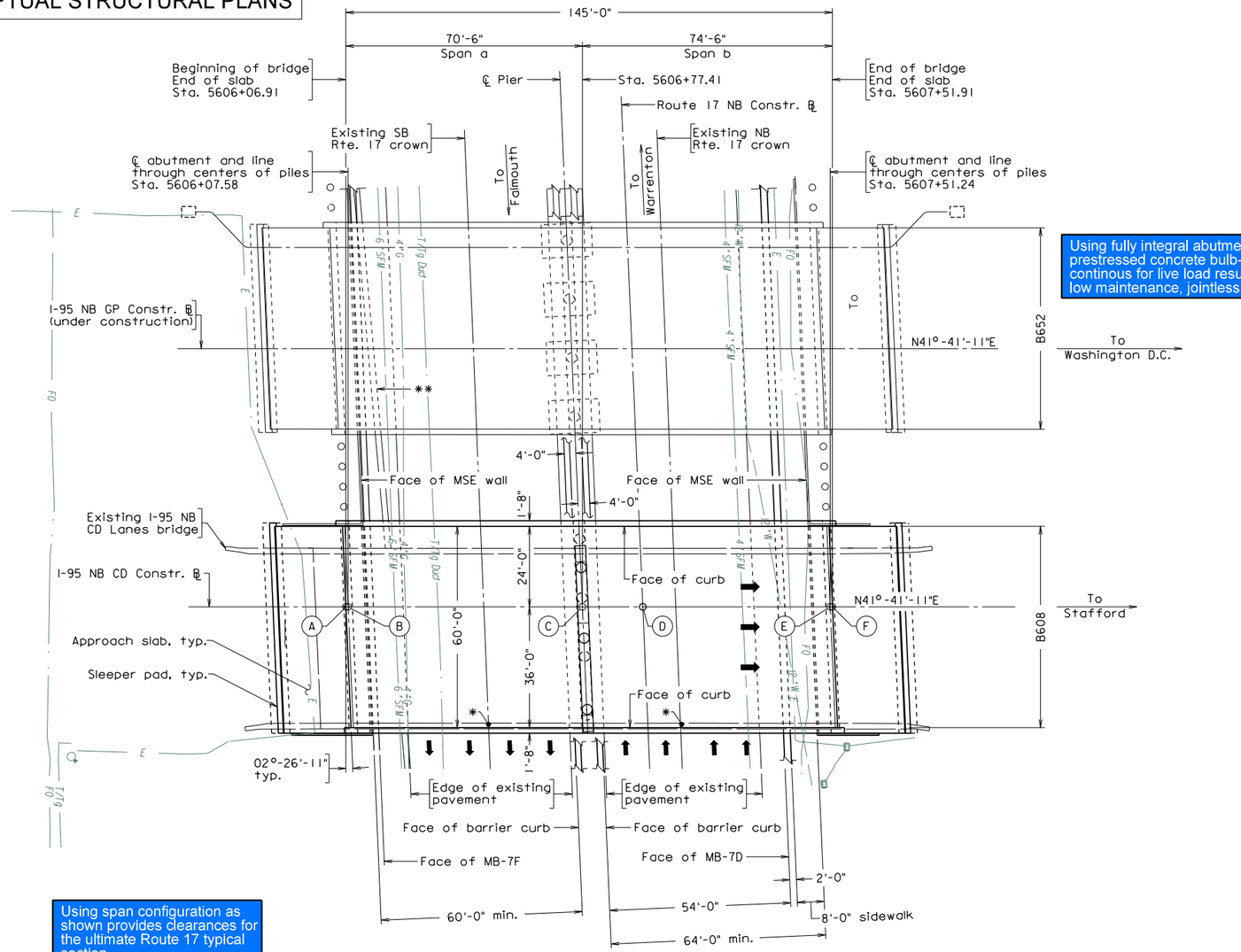
CONCEPTUAL STRUCTURAL PLANS

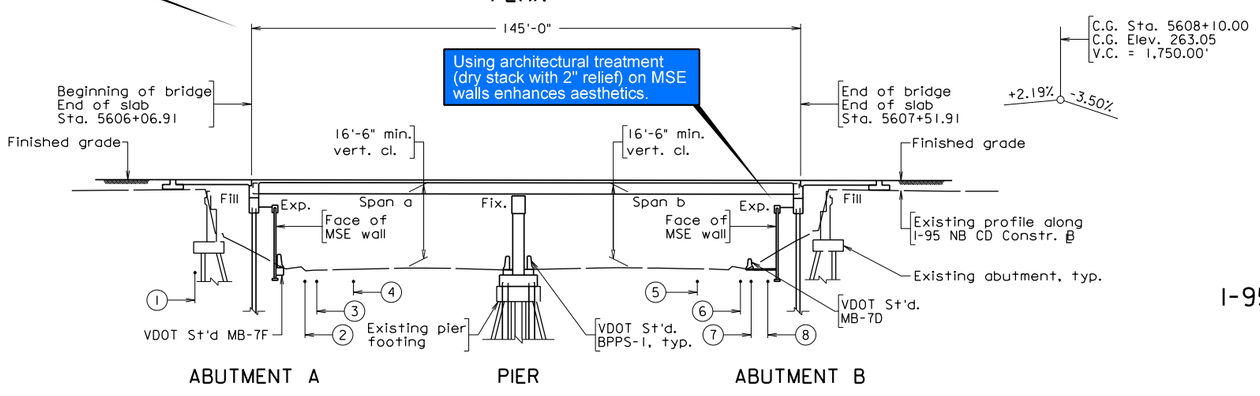


PLAN

Using fully integral abutments and prestressed concrete bulb-T beams continous for live load results in a low maintenance, jointless bridges.

Using span configuration as shown provides clearances for the ultimate Route 17 typical section.

Using architectural treatment (dry stack with 2" relief) on MSE walls enhances aesthetics.



DEVELOPED SECTION ALONG I-95 NB CD CONSTR. ℄

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

Width: 60'-0" face-to-face of curbs.

Span layout: 70'-6" - 74'-6" prestressed concrete 29" deep bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; VDOT Modifications and Additional Foundation Criteria.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

Bridge No. of existing bridge in NB CD Lanes is 2031. Plan No. is 258-52.

LEGEND:

* Point of minimum vertical clearance

** Existing VDOT St'd. MB-7F.

EXISTING UTILITIES LEGEND:

(1) Electric line
(2) 6" dia. sanitary force main
(3) 4" dia. gas line
(4) Telephone line
(5) 4" dia. sanitary force main
(6) 12" dia. water line
(7) Electric line
(8) Fiber optics line

ELEVATIONS:

(A) 251.26
(B) 251.26
(C) 251.19
(E) 250.93
(F) 250.93

TIE STATION AND DELTA ANGLE:

(D) POT Sta. 5606+95.43 I-95 NB CD Constr. ℄ = POT Sta. 8012+68.60 Route 17 NB Constr. ℄
△ = 92°-26'-11" LT

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON
I-95 NB CD LANES OVER RTE. 17 (WARRENTON RD.)
STAFFORD CO. - 1.1 MI S. OF RTE. 652
PROJ. 0095-111-270, B608

Scale: 1" = 20'

DESIGN BUILDER
WAGMAN
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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
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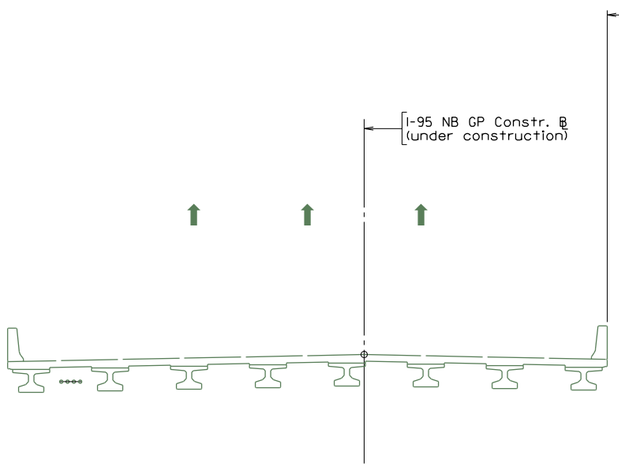
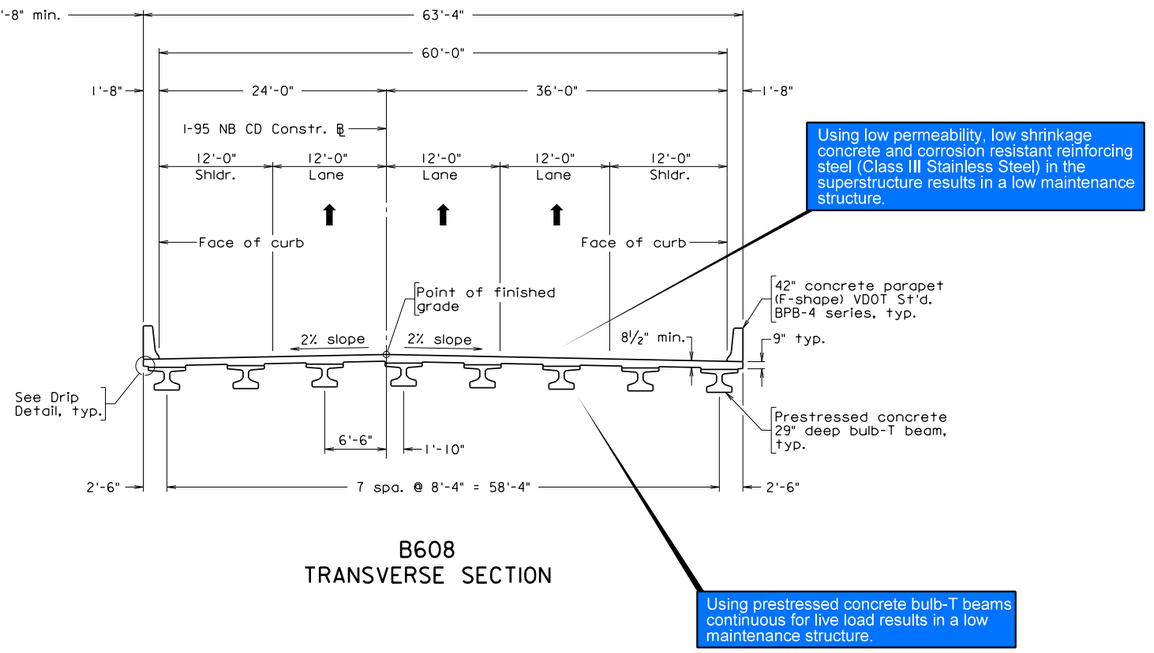
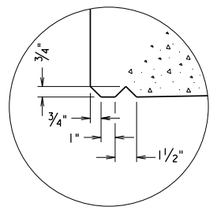
CONCEPTUAL STRUCTURAL PLANS



B652
TRANSVERSE SECTION
(Under Construction)



B608
TRANSVERSE SECTION



DRIP DETAIL
Not to scale

Scale: ¼" = 1'-0"

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VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
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4.5.1 & 4.5.2
Sequence of Construction and MOT Phasing

Per the RFP, Sequence of Construction and MOT Phasing can be demonstrated on the same 11”x17” graphic

WAGMAN | JMT
A DESIGN-BUILD TEAM

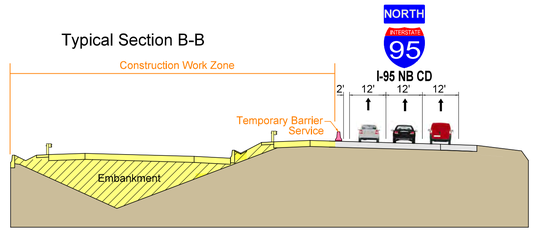
GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE S1

Key Construction Activities in Phase S1

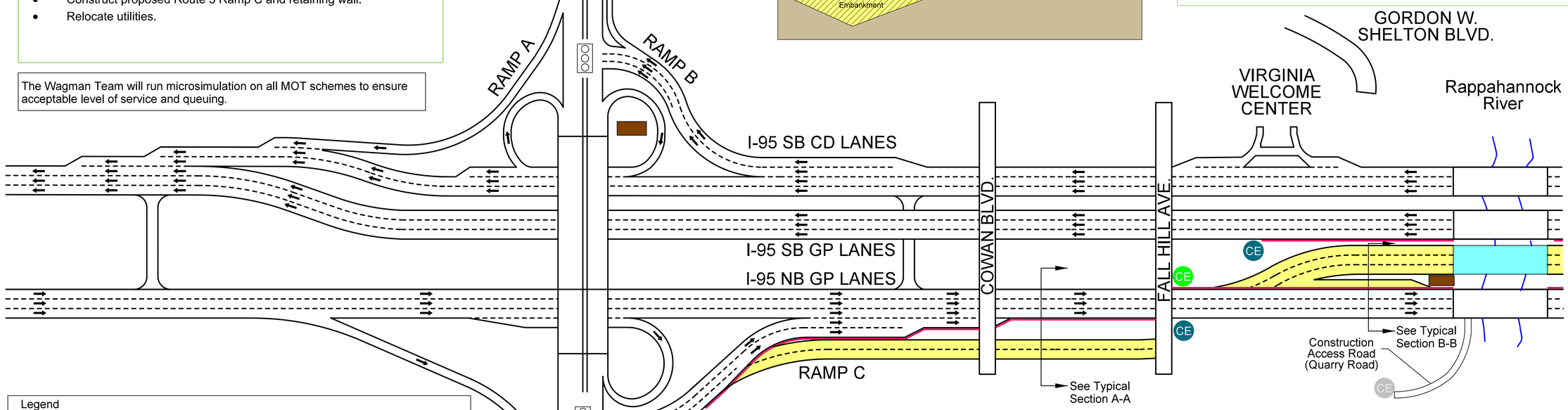
- Median clearing and grubbing.
- Set up erosion and sediment control.
- Construct proposed I-95 NB GP Lanes within the existing I-95 median.
- Relocate the existing causeway and construct the Rappahannock River Bridge.
- Construct proposed Route 3 Ramp C and retaining wall.
- Relocate utilities.

The Wagman Team will run microsimulation on all MOT schemes to ensure acceptable level of service and queuing.



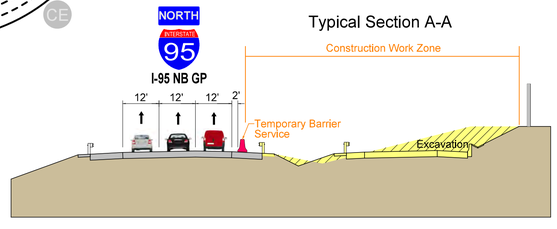
MOT Features in Phase S1

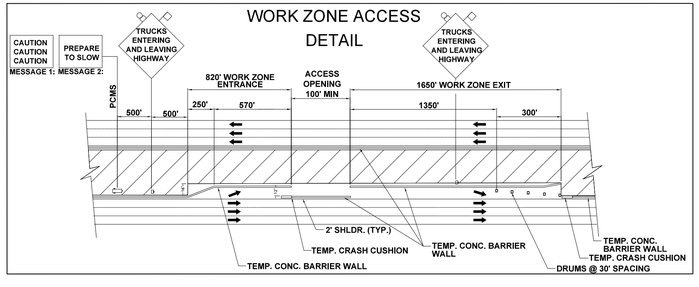
- Shift traffic to the right and place temporary barrier along the left shoulder existing I-95 NB to protect the work zone.
- Place temporary barrier along right shoulder of existing I-95 NB from Route 3 to the proposed slip ramp to protect the work zone.
- Use nighttime lane closures as needed for barrier installation.



Legend

- Work ongoing during this phase
- Bridge Construction ongoing this phase
- Work completed previous phase
- Temporary Pavement
- CE Construction Entrance -- Outside Egress Access with Acceleration Lane
- CE Construction Entrance -- Outside Ingress Access with Deceleration Lane
- CE Construction Entrance -- Median Access with Accel./Decel. Lanes
- CE Construction Entrance -- Ingress/Egress from Route 17
- CE Construction Entrance -- Standard Construction Entrance
- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area





SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																													FC			
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Design/ROW/Permits					Early Work Package (EWP)					ROW Plans			Release for Construction Plans																																												
I-95 South of River										Phase S1															Phase S2												Phase S3				Phase S4															
NB Rappahannock River Bridge										Causeway Flip			NB Rappahannock River Bridge Construction																								Continue Bridge Remove Causeway																			
I-95 North of River										Phase N1												Phase N2												Phase N3				Phase N4															
FredEx Overlap Area										Phase N1												Phase N2																															

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DESIGN BUILDER: WAGMAN — General Construction | Heavy Civil | Geotechnical

DESIGNED BY: JMT

STATE PROJECT: 0095-111-270, PE-101, RW-201, C-501, B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION

I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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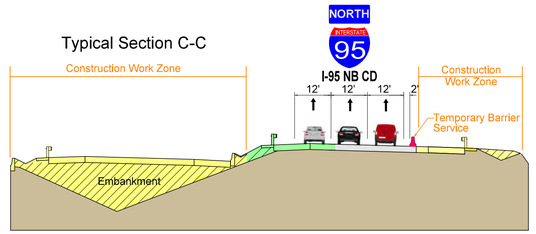
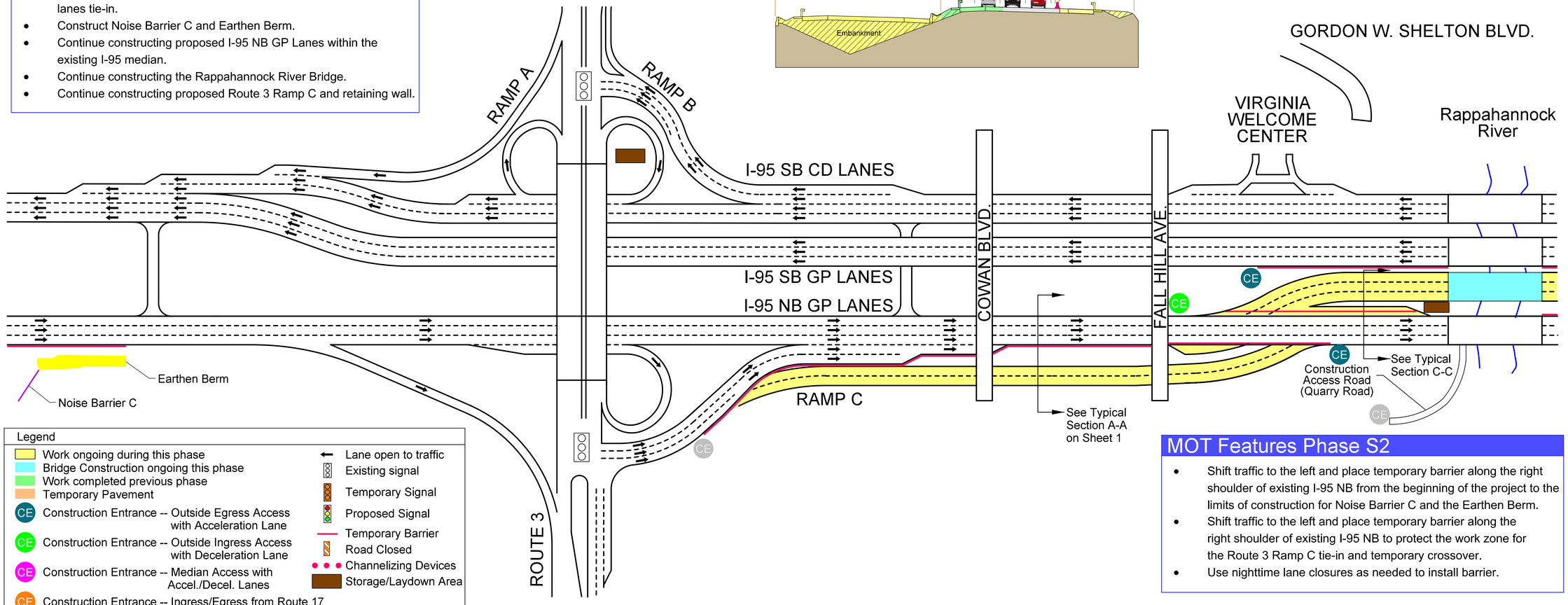
GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE S2

Key Construction Activities Phase S2

- Construct widening and tie-in where Route 3 Ramp C merges with existing I-95 NB.
- Construct temporary crossover for use in next phase for GP lanes tie-in.
- Construct Noise Barrier C and Earthen Berm.
- Continue constructing proposed I-95 NB GP Lanes within the existing I-95 median.
- Continue constructing the Rappahannock River Bridge.
- Continue constructing proposed Route 3 Ramp C and retaining wall.





Legend

- Work ongoing during this phase
- Bridge Construction ongoing this phase
- Work completed previous phase
- Temporary Pavement
- CE Construction Entrance -- Outside Egress Access with Acceleration Lane
- CE Construction Entrance -- Outside Ingress Access with Deceleration Lane
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- CE Construction Entrance -- Ingress/Egress from Route 17
- CE Construction Entrance -- Standard Construction Entrance
- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features Phase S2

- Shift traffic to the left and place temporary barrier along the right shoulder of existing I-95 NB from the beginning of the project to the limits of construction for Noise Barrier C and the Earthen Berm.
- Shift traffic to the left and place temporary barrier along the right shoulder of existing I-95 NB to protect the work zone for the Route 3 Ramp C tie-in and temporary crossover.
- Use nighttime lane closures as needed to install barrier.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																																FC			
FredEx Overlap Area Design[2]					Early Work Package (EWP)					RW ENV	RFC Plans																																														
Design/ROW/Permits					Early Work Package (EWP)					ROW Plans			Release for Construction Plans																																													
I-95 South of River										Phase S1															Phase S2												Phase S3				Phase S4															
NB Rappahannock River Bridge										Causeway Flip			NB Rappahannock River Bridge Construction																								Continue Bridge Remove Causeway																				
I-95 North of River										Phase N1											Phase N2																Phase N3				Phase N4															
FredEx Overlap Area										Phase N1											Phase N2																																			

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DESIGNED BY: JMT

STATE PROJECT: 0095-111-270, PE-101, RW-201, C-501, B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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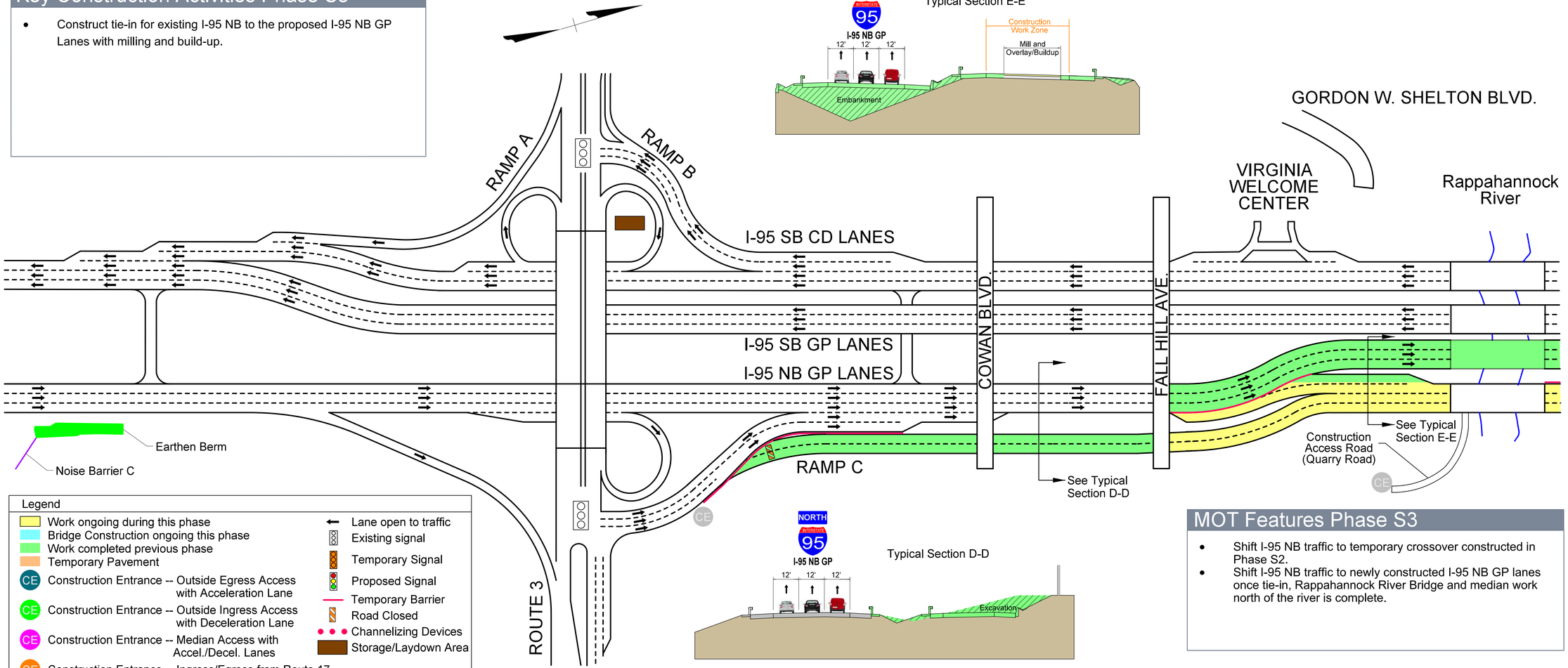
GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE S3

Key Construction Activities Phase S3

- Construct tie-in for existing I-95 NB to the proposed I-95 NB GP Lanes with milling and build-up.



Typical Section E-E

Typical Section D-D

Legend

- Work ongoing during this phase
- Bridge Construction ongoing this phase
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- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features Phase S3

- Shift I-95 NB traffic to temporary crossover constructed in Phase S2.
- Shift I-95 NB traffic to newly constructed I-95 NB GP lanes once tie-in, Rappahannock River Bridge and median work north of the river is complete.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																																FC			
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FredEx Overlap Area										Phase N1										Phase N2																																					

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DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT

STATE PROJECT
0095-111-270, PE-101, RW-201, C-501,
B-609, B-608

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

SHEET NO.
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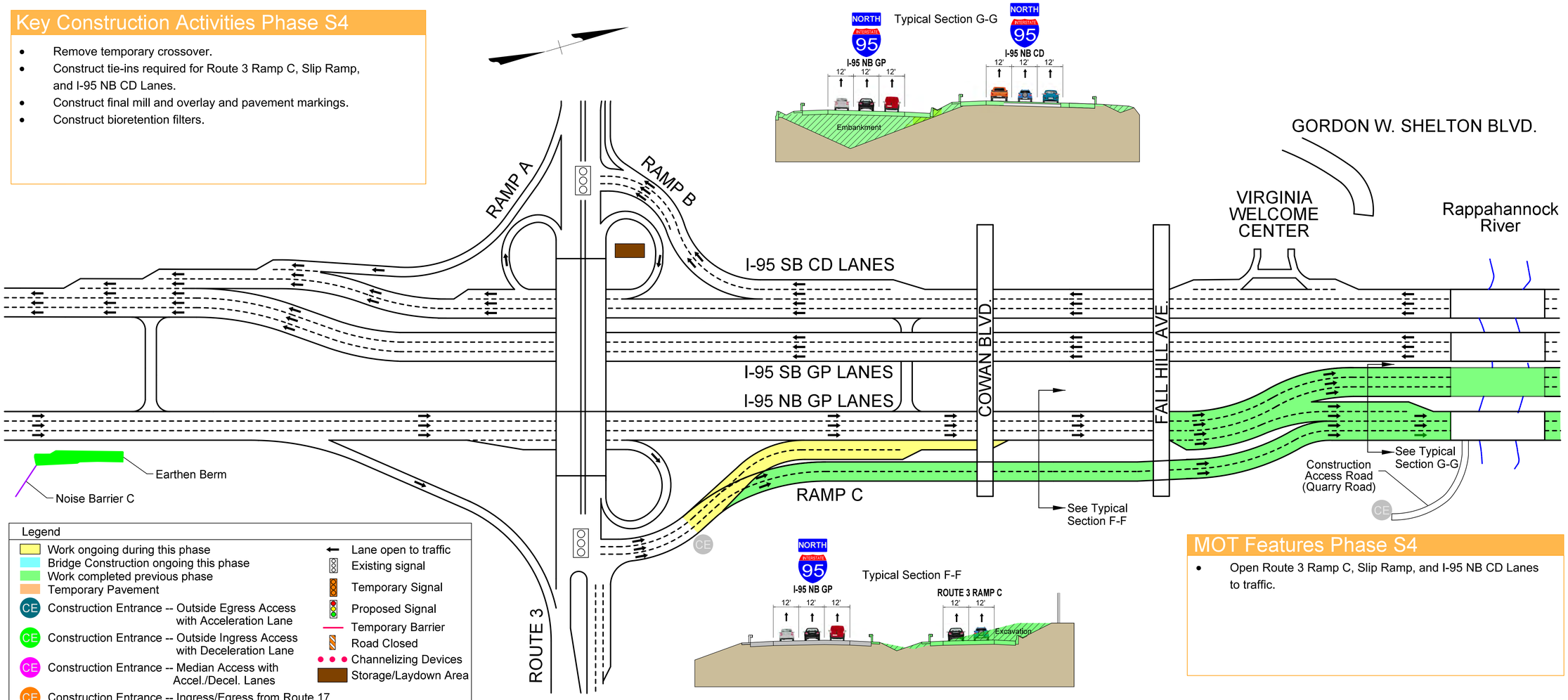
GEOGRAPHICAL AREA 1
SOUTH OF RAPPAHANNOCK RIVER:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE S4

Key Construction Activities Phase S4

- Remove temporary crossover.
- Construct tie-ins required for Route 3 Ramp C, Slip Ramp, and I-95 NB CD Lanes.
- Construct final mill and overlay and pavement markings.
- Construct bioretention filters.



Legend

- Work ongoing during this phase
- Bridge Construction ongoing this phase
- Work completed previous phase
- Temporary Pavement
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- CE Construction Entrance -- Outside Ingress Access with Deceleration Lane
- CE Construction Entrance -- Median Access with Accel./Decel. Lanes
- CE Construction Entrance -- Ingress/Egress from Route 17
- CE Construction Entrance -- Standard Construction Entrance
- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features Phase S4

- Open Route 3 Ramp C, Slip Ramp, and I-95 NB CD Lanes to traffic.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																															FC			
FredEx Overlap Area Design[2]					Early Work Package (EWP)					RW ENV	RFC Plans																																														
Design/ROW/Permits					Early Work Package (EWP)					ROW Plans			Release for Construction Plans																																													
I-95 South of River										Phase S1															Phase S2												Phase S3				Phase S4															
NB Rappahannock River Bridge										Causeway Flip			NB Rappahannock River Bridge Construction																								Continue Bridge Remove Causeway																			
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DESIGN BUILDER: WAGMAN General Construction | Heavy Civil | Geotechnical

DESIGNED BY: JMT

STATE PROJECT: 0095-111-270, PE-101, RW-201, C-501, B-609, B-608

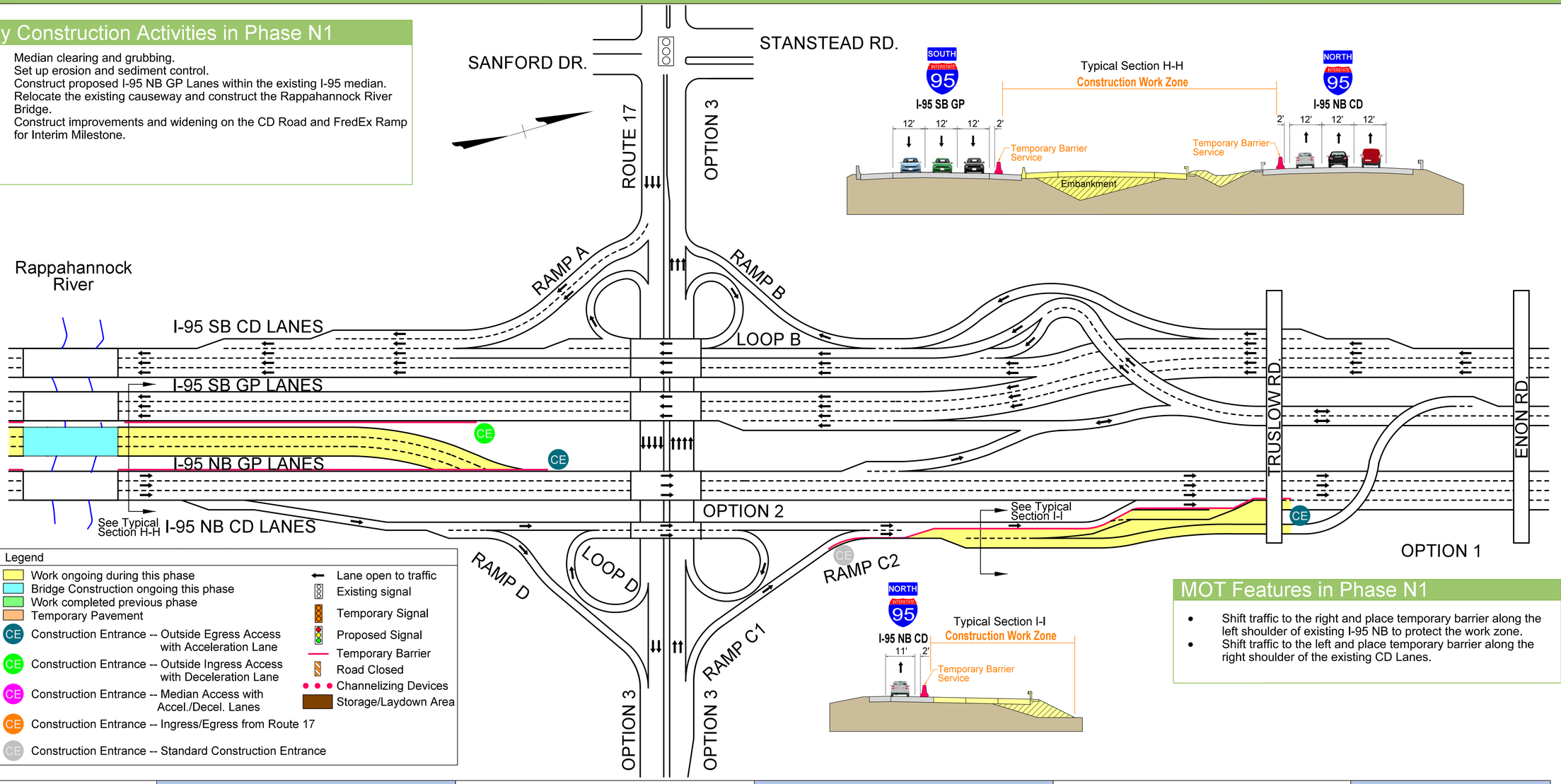
VIRGINIA DEPARTMENT OF TRANSPORTATION
I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE N1

Key Construction Activities in Phase N1

- Median clearing and grubbing.
- Set up erosion and sediment control.
- Construct proposed I-95 NB GP Lanes within the existing I-95 median.
- Relocate the existing causeway and construct the Rappahannock River Bridge.
- Construct improvements and widening on the CD Road and FredEx Ramp for Interim Milestone.



Legend

- Work ongoing during this phase
- Bridge Construction ongoing this phase
- Work completed previous phase
- Temporary Pavement
- CE Construction Entrance -- Outside Egress Access with Acceleration Lane
- CE Construction Entrance -- Outside Ingress Access with Deceleration Lane
- CE Construction Entrance -- Median Access with Accel./Decel. Lanes
- CE Construction Entrance -- Ingress/Egress from Route 17
- CE Construction Entrance -- Standard Construction Entrance
- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features in Phase N1

- Shift traffic to the right and place temporary barrier along the left shoulder of existing I-95 NB to protect the work zone.
- Shift traffic to the left and place temporary barrier along the right shoulder of the existing CD Lanes.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																													FC			
FredEx Overlap Area Design[2]					Early Work Package (EWP)					RW ENV	RFC Plans																																											
Design/ROW/Permits					Early Work Package (EWP)					ROW Plans			Release for Construction Plans																																										
I-95 South of River										Phase S1															Phase S2												Phase S3				Phase S4														
NB Rappahannock River Bridge										Causeway Flip			NB Rappahannock River Bridge Construction																								Continue Bridge Remove Causeway																		
I-95 North of River										Phase N1												Phase N2												Phase N3				Phase N4														
FredEx Overlap Area										Phase N1											Phase N2																																

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2. VDOT Provided Approved Environmental Permit and Right-of-Way Acquisition Completed by VDOT (RW ENV) - 10/30/2020

Note: Official project schedule is shown in Section 4.7 and shows all construction activities durations. The schedule and key construction activities shown here is simplified for purposes of highlighting key construction activities occurring during major traffic shifts shifts and the approximate duration of these major traffic shifts. Some activities will continue into the next MOT phase. Any discrepancies with the official project schedule are unintentional and the official project schedule supersedes durations shown here.

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I-95 NORTHBOUND
RAPPAHANNOCK RIVER CROSSING
DESIGN BUILD PROJECT

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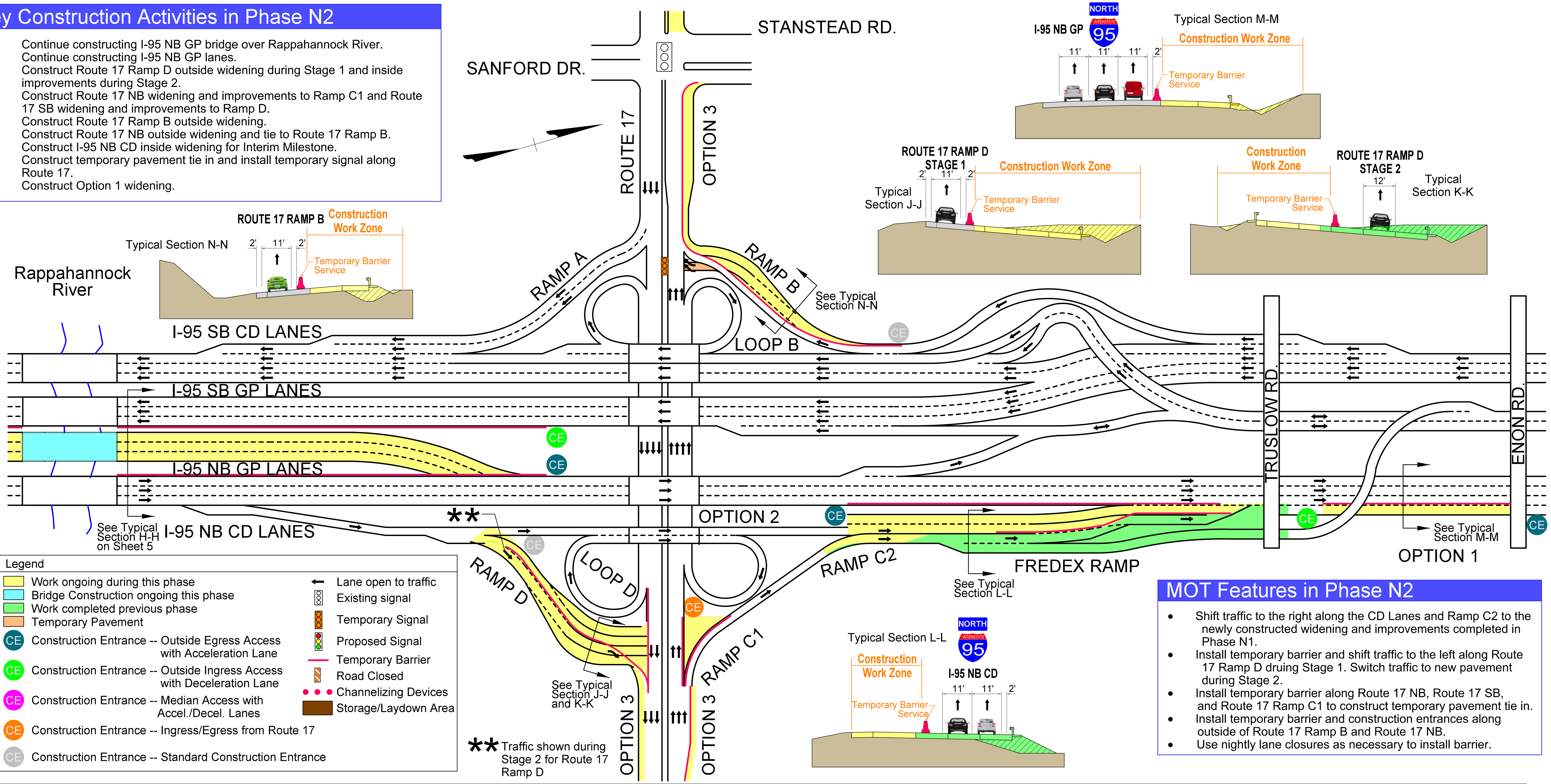
GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE N2

Key Construction Activities in Phase N2

- Continue constructing I-95 NB GP bridge over Rappahannock River.
- Continue constructing I-95 NB GP lanes.
- Construct Route 17 Ramp D outside widening during Stage 1 and inside improvements during Stage 2.
- Construct Route 17 NB widening and improvements to Ramp C1 and Route 17 SB widening and improvements to Ramp D.
- Construct Route 17 Ramp B outside widening.
- Construct Route 17 NB outside widening and tie to Route 17 Ramp B.
- Construct I-95 NB CD inside widening for Interim Milestone.
- Construct temporary pavement tie in and install temporary signal along Route 17.
- Construct Option 1 widening.



Legend

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- Bridge Construction ongoing this phase
- Work completed previous phase
- Temporary Pavement
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- CE Construction Entrance -- Median Access with Accel./Decel. Lanes
- CE Construction Entrance -- Ingress/Egress from Route 17
- CE Construction Entrance -- Standard Construction Entrance
- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features in Phase N2

- Shift traffic to the right along the CD Lanes and Ramp C2 to the newly constructed widening and improvements completed in Phase N1.
- Install temporary barrier and shift traffic to the left along Route 17 Ramp D druing Stage 1. Switch traffic to new pavement during Stage 2.
- Install temporary barrier along Route 17 NB, Route 17 SB, and Route 17 Ramp C1 to construct temporary pavement tie in.
- Install temporary barrier and construction entrances along outside of Route 17 Ramp B and Route 17 NB.
- Use nightly lane closures as necessary to install barrier.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																															FC			
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Design/ROW/Permits							Early Work Package (EWP)				ROW Plans						Release for Construction Plans																																							
I-95 South of River															Phase S1														Phase S2									Phase S3			Phase S4															
NB Rappahannock River Bridge											Causeway Flip													NB Rappahannock River Bridge Construction												Continue Bridge Remove Causeway																				
I-95 North of River															Phase N1												Phase N2							Phase N3												Phase N4											
FredEx Overlap Area															Phase N1						Phase N2																																			

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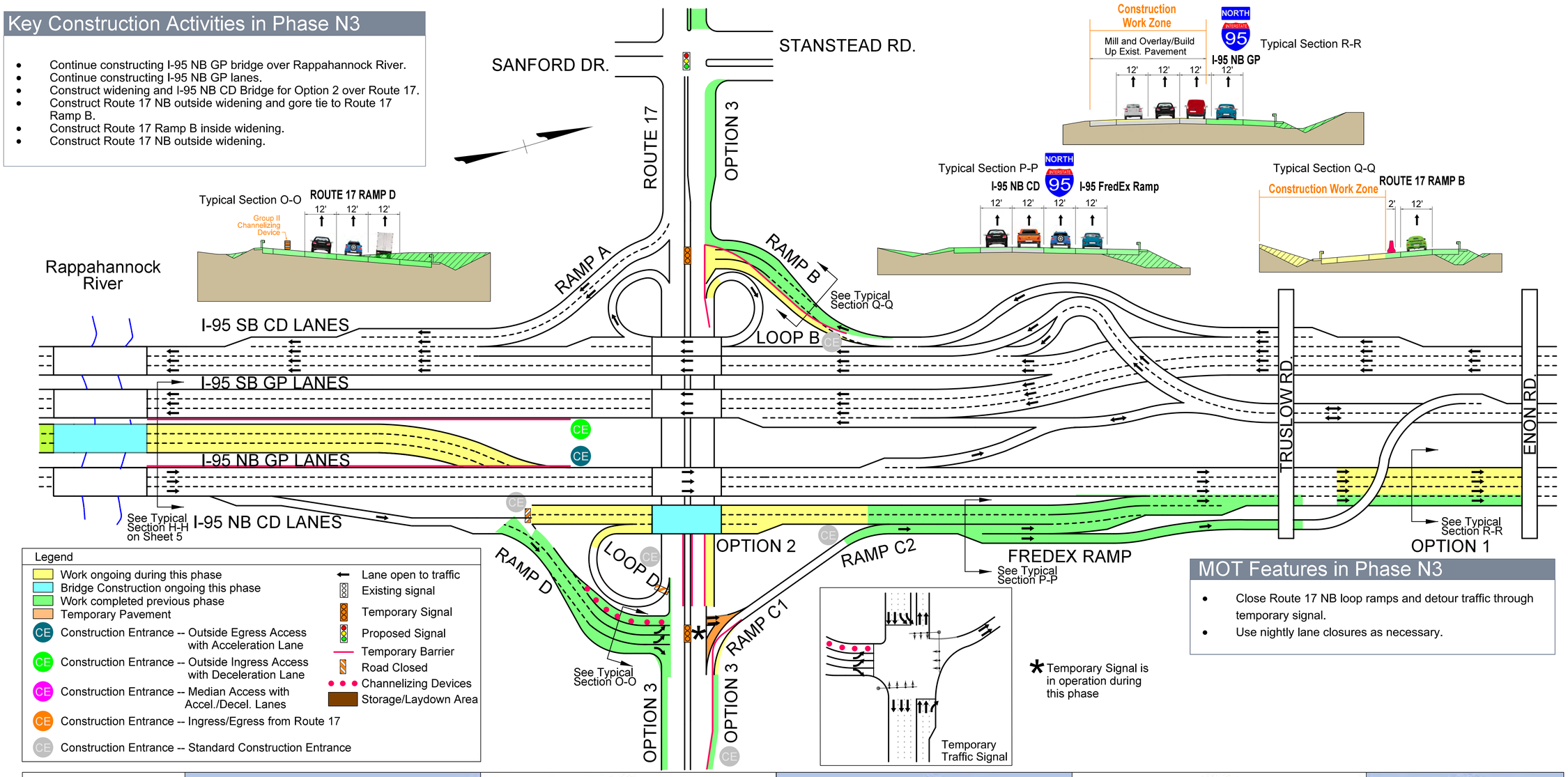
GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE N3

Key Construction Activities in Phase N3

- Continue constructing I-95 NB GP bridge over Rappahannock River.
- Continue constructing I-95 NB GP lanes.
- Construct widening and I-95 NB CD Bridge for Option 2 over Route 17.
- Construct Route 17 NB outside widening and gore tie to Route 17 Ramp B.
- Construct Route 17 Ramp B inside widening.
- Construct Route 17 NB outside widening.



Legend

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- Lane open to traffic
- Existing signal
- Temporary Signal
- Proposed Signal
- Temporary Barrier
- Road Closed
- Channelizing Devices
- Storage/Laydown Area

MOT Features in Phase N3

- Close Route 17 NB loop ramps and detour traffic through temporary signal.
- Use nightly lane closures as necessary.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT			RW NTP									IM																																FC			
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NB Rappahannock River Bridge										Causeway Flip			NB Rappahannock River Bridge Construction																								Continue Bridge Remove Causeway																				
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FredEx Overlap Area										Phase N1															Phase N2																															

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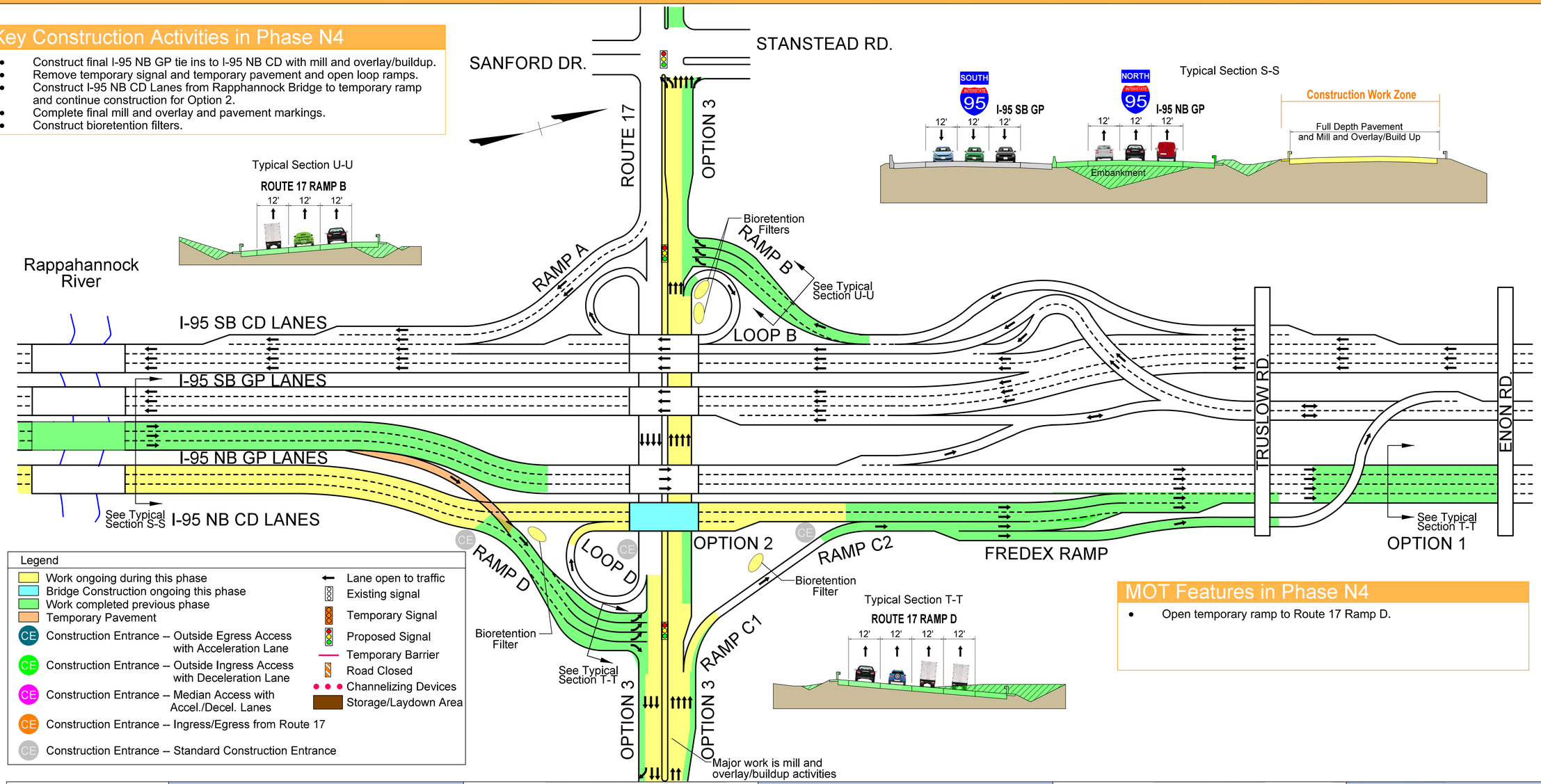
GEOGRAPHICAL AREA 3
NORTH OF RAPPAHANNOCK:
SEQUENCE OF CONSTRUCTION AND MOT PHASING

PHASE N4

Key Construction Activities in Phase N4

- Construct final I-95 NB GP tie ins to I-95 NB CD with mill and overlay/buildup.
- Remove temporary signal and temporary pavement and open loop ramps.
- Construct I-95 NB CD Lanes from Rapphannock Bridge to temporary ramp and continue construction for Option 2.
- Complete final mill and overlay and pavement markings.
- Construct bioretention filters.



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- Proposed Signal
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- Channelizing Devices
- Storage/Laydown Area

MOT Features in Phase N4

- Open temporary ramp to Route 17 Ramp D.

SCHEDULE	2020												2021												2022												2023												2024							
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
Schedule Milestones[1]					NTP					ENV PMT												IM																														FC			
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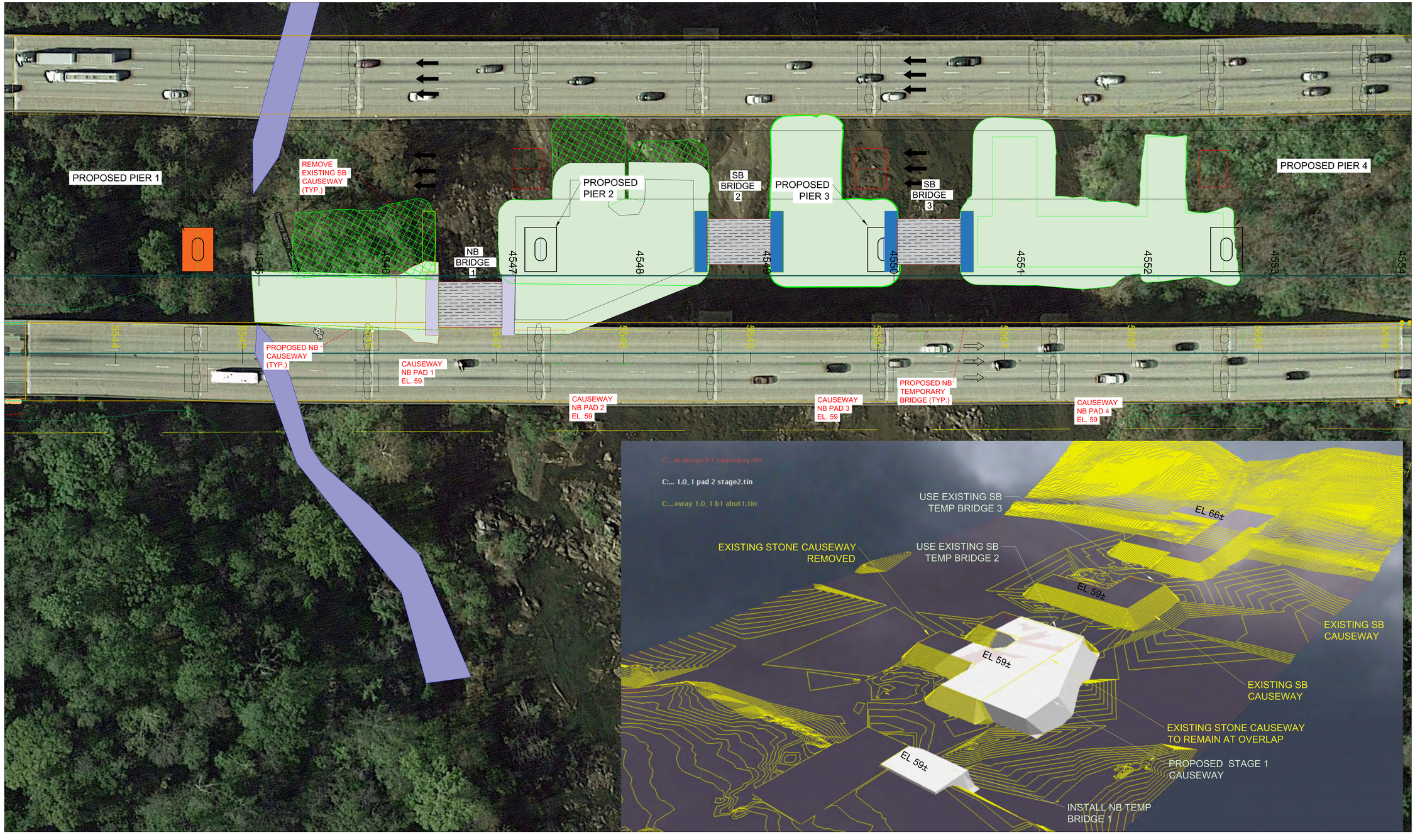
CONCEPTUAL ROADWAY PLANS

RAPPAHANNOCK RIVER BRIDGE CAUSEWAY SEQUENCE - STAGE 1

SCALE
0 100' 200'



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CONCEPTUAL ROADWAY PLANS

SCALE
0 100' 200'

RAPPAHANNOCK RIVER BRIDGE CAUSEWAY SEQUENCE - STAGE 2

PROPOSED PIER 1
CONCRETE BLOCKS ALONG COFFERDAM CELL (TYP.)
PROPOSED PIER 2
SB BRIDGE 2
PROPOSED PIER 3
PROPOSED PIER 4
NB BRIDGE 1
NB BRIDGE 3
PROPOSED NB CAUSEWAY (TYP.)
CAUSEWAY NB PAD 1 EL. 59
CAUSEWAY NB PAD 2 EL. 59
CAUSEWAY NB PAD 3 EL. 59
CAUSEWAY NB PAD 4 EL. 59
PROPOSED NB TEMPORARY BRIDGE (TYP.)

C:...m-merge3 1 causeway.tin
C:... 1.0_1 pad 2 stage3.tin
C:... 1.0_1 pad 3 stage3.tin
C:...eway 1.0_1 b1 abut2.tin
C:...eway 1.0_1 b1 abut1.tin
C:...p\Nb causeway 1.0_2.tin

EXISTING STONE CAUSEWAY REMOVED
USE EXISTING SB TEMP BRIDGE 2
EL 66±
EL 59±
EL 59±
EL 59±
PROPOSED STAGE 2 CAUSEWAY
NB TEMP BRIDGE 3
PROPOSED STAGE 2 CAUSEWAY
EXISTING STONE CAUSEWAY TO REMAIN AT OVERLAP
PROPOSED STAGE 2 CAUSEWAY
NB TEMP BRIDGE 1

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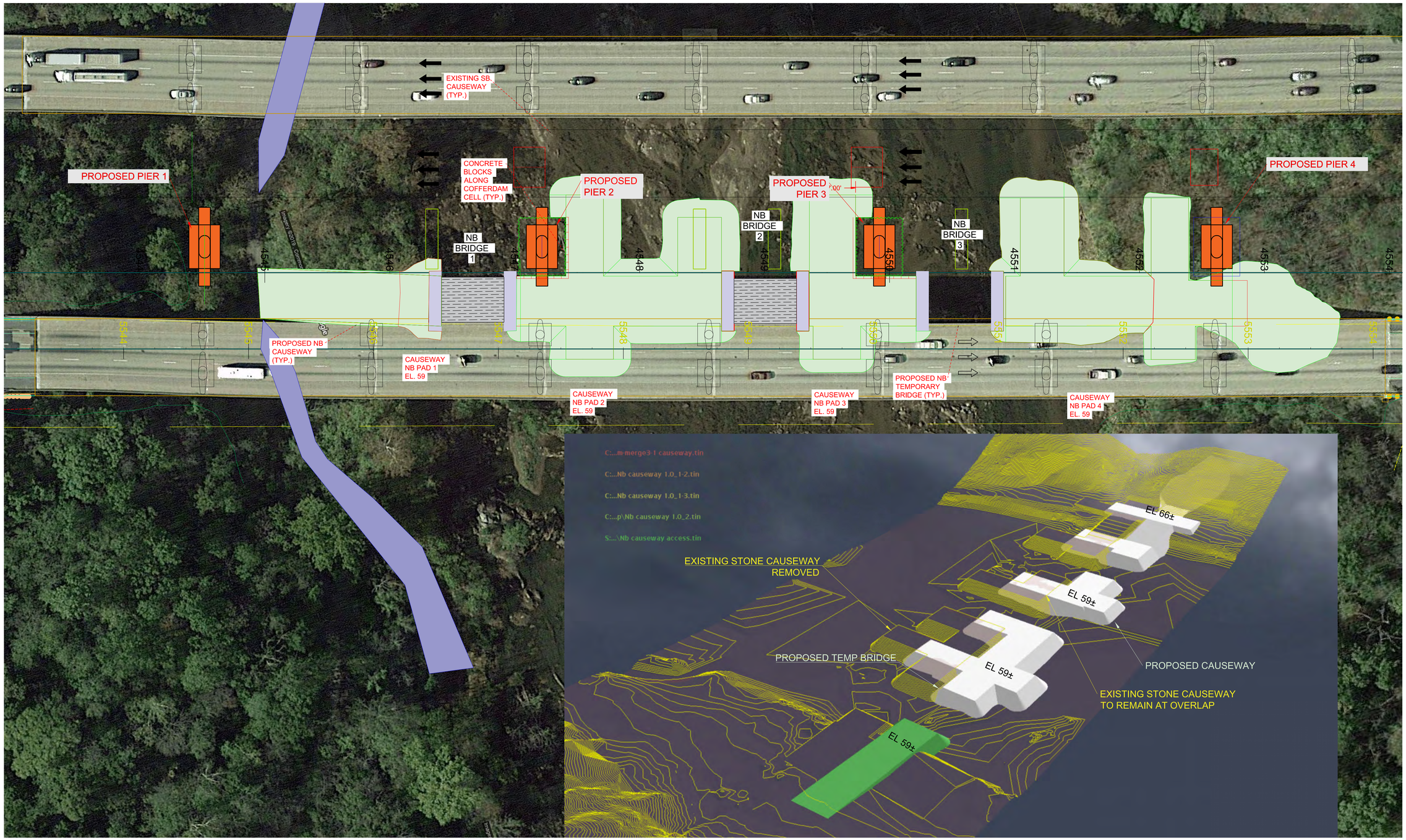
CONCEPTUAL ROADWAY PLANS

SCALE
0 100' 200'

RAPPAHANNOCK RIVER BRIDGE CAUSEWAY SEQUENCE - STAGE 3



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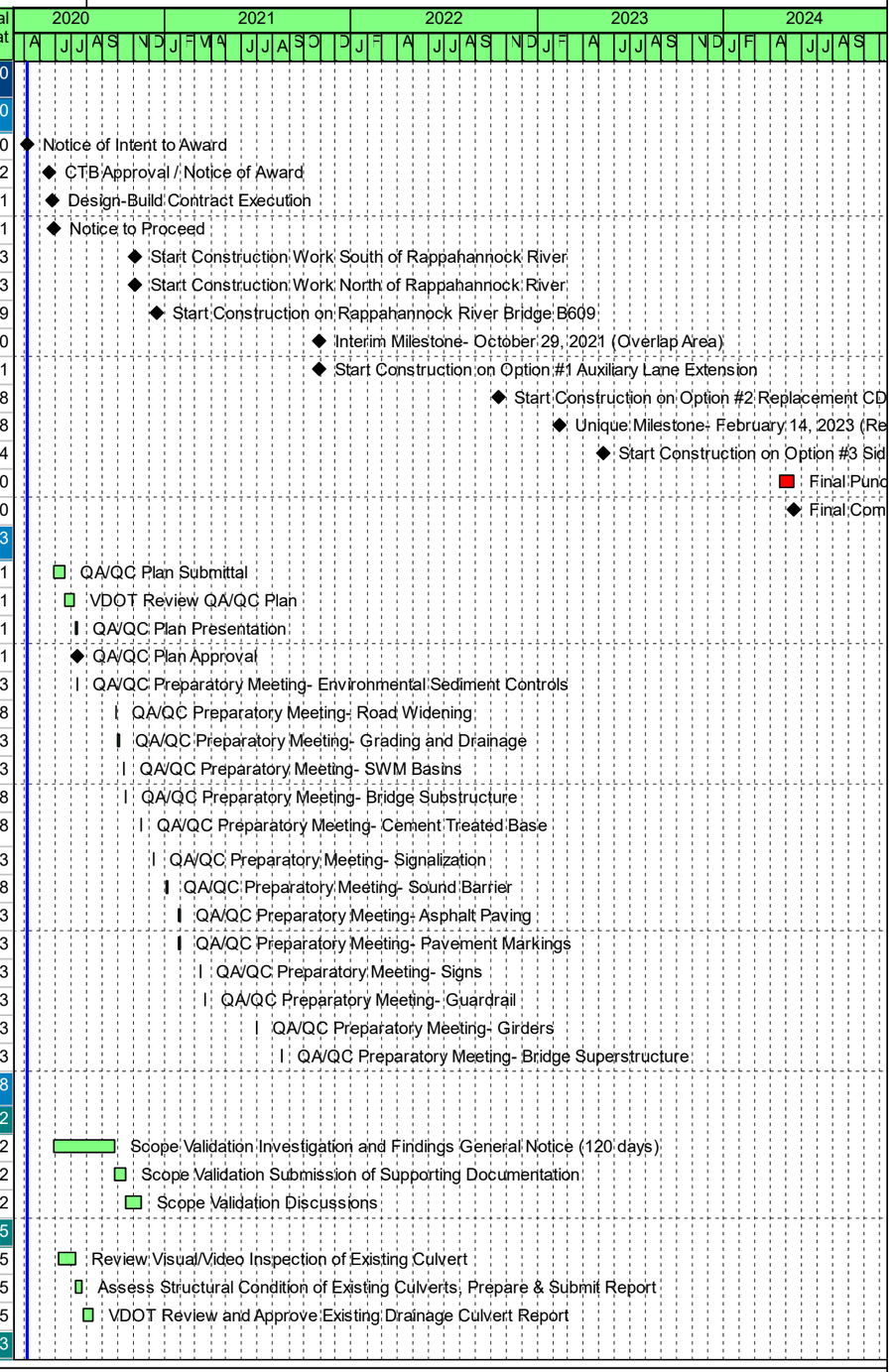
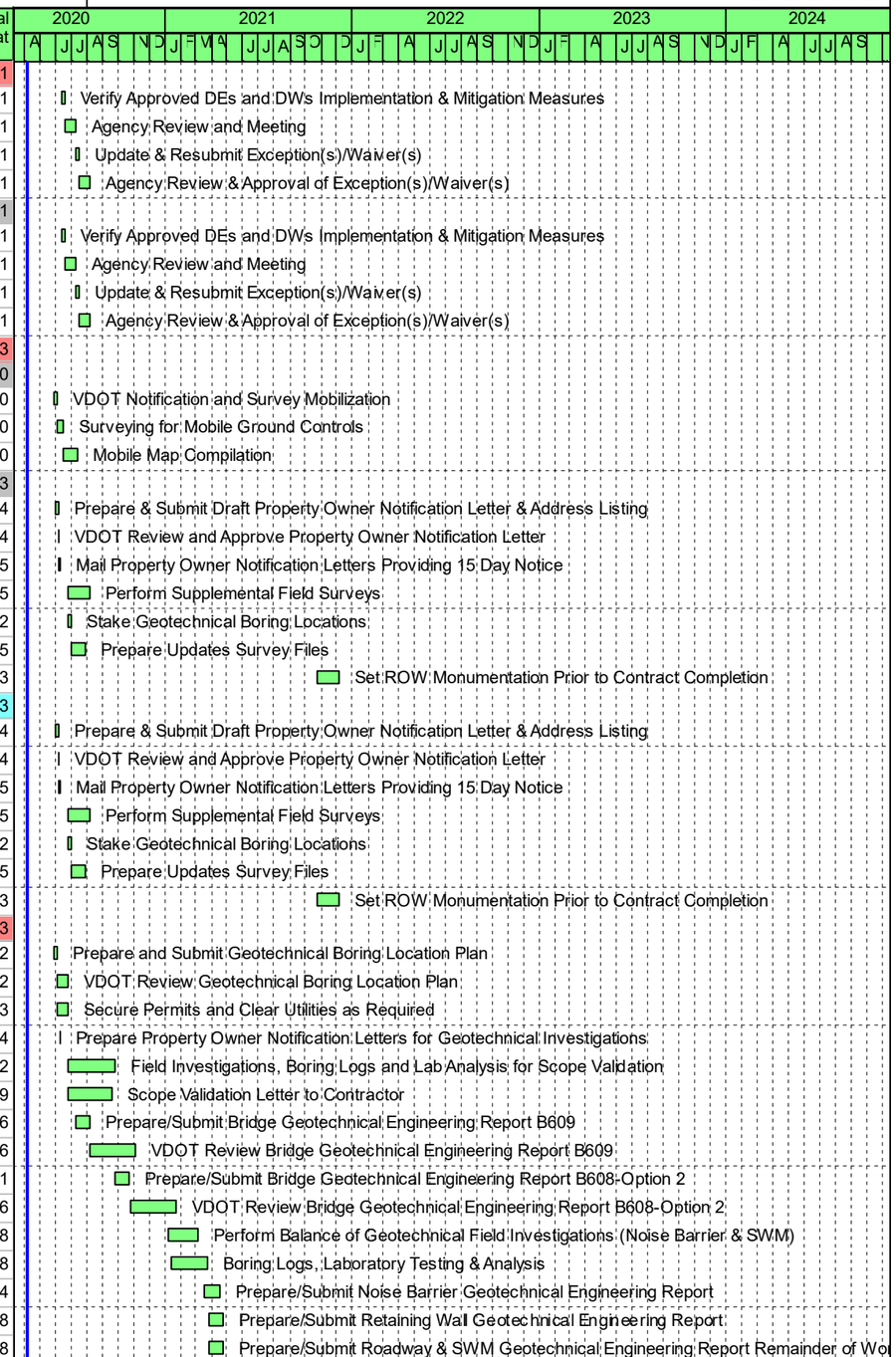
4.6.1 Proposal Schedule

WAGMAN | JMT
A DESIGN-BUILD TEAM

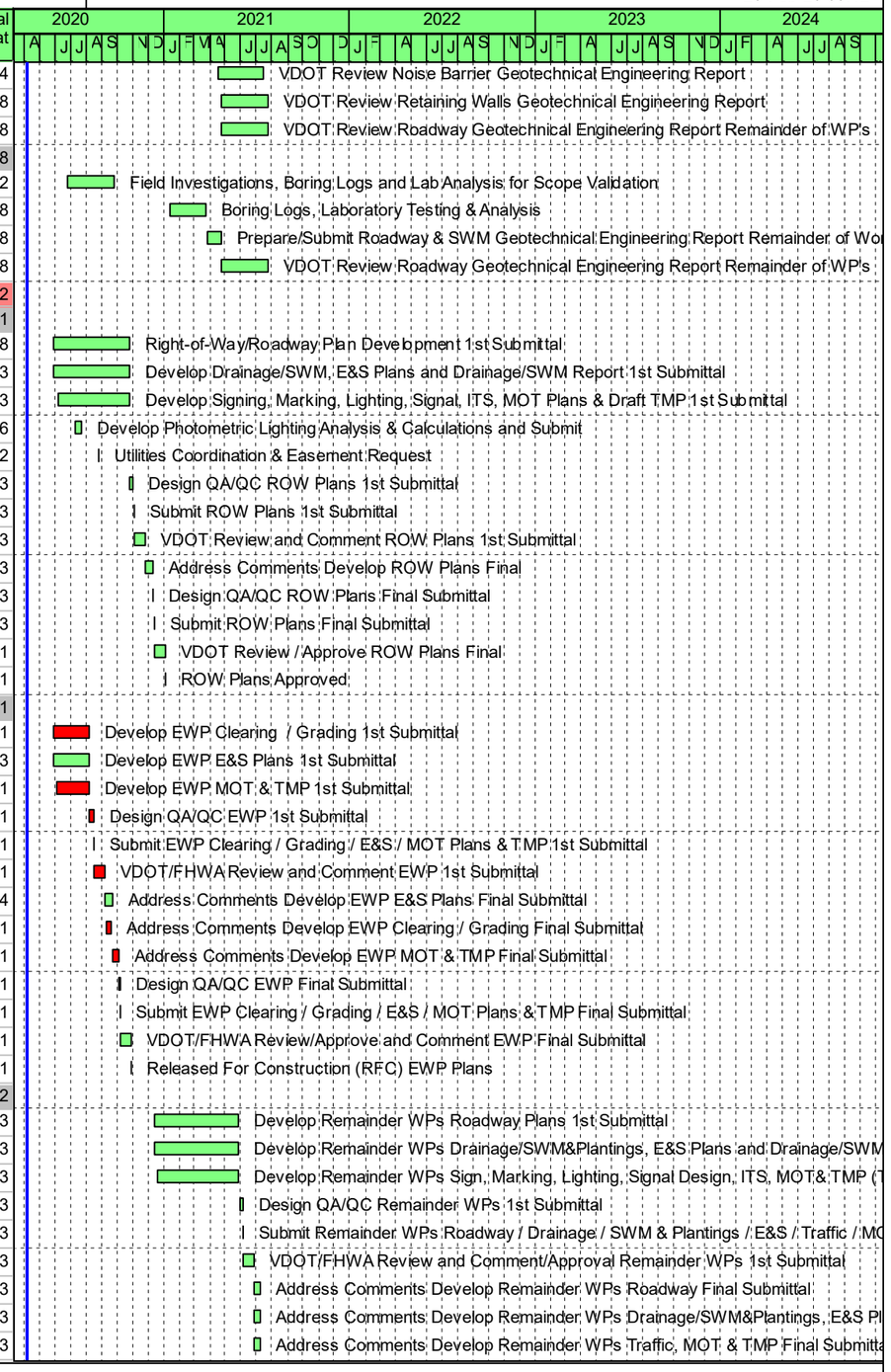
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
I-95 Northbound Rappahannock River Crossing Technical Proposal		1503	1503	06-Apr-20	17-May-24	0
Project Milestones		1503	1503	06-Apr-20	17-May-24	0
G1070	Notice of Intent to Award	0	0	06-Apr-20		0
G1000	CTB Approval / Notice of Award	0	0	20-May-20		2
G1020	Design-Build Contract Execution	0	0	26-May-20		11
G1080	Notice to Proceed	0	0	28-May-20		11
G1110	Start Construction Work South of Rappahannock River	0	0	02-Nov-20		1293
G1100	Start Construction Work North of Rappahannock River	0	0	02-Nov-20		1293
G1090	Start Construction on Rappahannock River Bridge B609	0	0	16-Dec-20		1249
G1220	Interim Milestone- October 29, 2021 (Overlap Area)	0	0		29-Oct-21*	0
G1190	Start Construction on Option #1 Auxiliary Lane Extension	0	0	30-Oct-21		931
G1200	Start Construction on Option #2 Replacement CD Bridge B608	0	0	18-Oct-22		578
G1210	Unique Milestone- February 14, 2023 (Removal of the Causeway)	0	0		14-Feb-23	458
G1205	Start Construction on Option #3 Sidewalk Connection through I-95/Route 17 Interchange	0	0	10-May-23		374
G1040	Final Punchlist	30	30	18-Apr-24	17-May-24	0
G1030	Final Completion - May 17, 2024	0	0		17-May-24*	0
QA/QC Plan		448	448	28-May-20	18-Aug-21	1003
G1010	QA/QC Plan Submittal	21	21	28-May-20	17-Jun-20	171
G1180	VDOT Review QA/QC Plan	21	21	17-Jun-20	08-Jul-20	171
G1170	QA/QC Plan Presentation	5	5	09-Jul-20	13-Jul-20	171
G1160	QA/QC Plan Approval	0	0		13-Jul-20	171
G1240	QA/QC Preparatory Meeting- Environmental Sediment Controls	1	1	13-Jul-20	14-Jul-20	1403
G1230	QA/QC Preparatory Meeting- Road Widening	1	1	26-Sep-20	27-Sep-20	1328
G1250	QA/QC Preparatory Meeting- Grading and Drainage	1	1	01-Oct-20	02-Oct-20	1323
G1270	QA/QC Preparatory Meeting- SWM Basins	1	1	11-Oct-20	12-Oct-20	1313
G1320	QA/QC Preparatory Meeting- Bridge Substructure	1	1	16-Oct-20	17-Oct-20	1308
G1260	QA/QC Preparatory Meeting- Cement Treated Base	1	1	15-Nov-20	16-Nov-20	1278
G1350	QA/QC Preparatory Meeting- Signalization	1	1	10-Dec-20	11-Dec-20	1253
G1360	QA/QC Preparatory Meeting- Sound Barrier	1	1	04-Jan-21	05-Jan-21	1228
G1280	QA/QC Preparatory Meeting- Asphalt Paving	1	1	29-Jan-21	30-Jan-21	1203
G1290	QA/QC Preparatory Meeting- Pavement Markings	1	1	29-Jan-21	30-Jan-21	1203
G1310	QA/QC Preparatory Meeting- Signs	1	1	10-Mar-21	11-Mar-21	1163
G1300	QA/QC Preparatory Meeting- Guardrail	1	1	20-Mar-21	21-Mar-21	1153
G1330	QA/QC Preparatory Meeting- Girders	1	1	28-Jun-21	29-Jun-21	1053
G1340	QA/QC Preparatory Meeting- Bridge Superstructure	1	1	17-Aug-21	18-Aug-21	1003
I-95 Design / Environmental / Right-of-Way / Utilities		985	985	06-Apr-20	16-Dec-22	518
Scope Validation Period		171	171	29-May-20	15-Nov-20	82
D2630	Scope Validation Investigation and Findings General Notice (120 days)	120	120	29-May-20	25-Sep-20	82
D2650	Scope Validation Submission of Supporting Documentation	21	21	26-Sep-20	16-Oct-20	82
D2620	Scope Validation Discussions	30	30	17-Oct-20	15-Nov-20	82
Existing Drainage Culverts		70	70	05-Jun-20	13-Aug-20	125
D2560	Review Visual/Video Inspection of Existing Culvert	35	35	05-Jun-20	09-Jul-20	125
D1240	Assess Structural Condition of Existing Culverts, Prepare & Submit Report	14	14	10-Jul-20	23-Jul-20	125
D3170	VDOT Review and Approve Existing Drainage Culvert Report	21	21	24-Jul-20	13-Aug-20	125
Design Phase		558	558	28-May-20	06-Dec-21	863



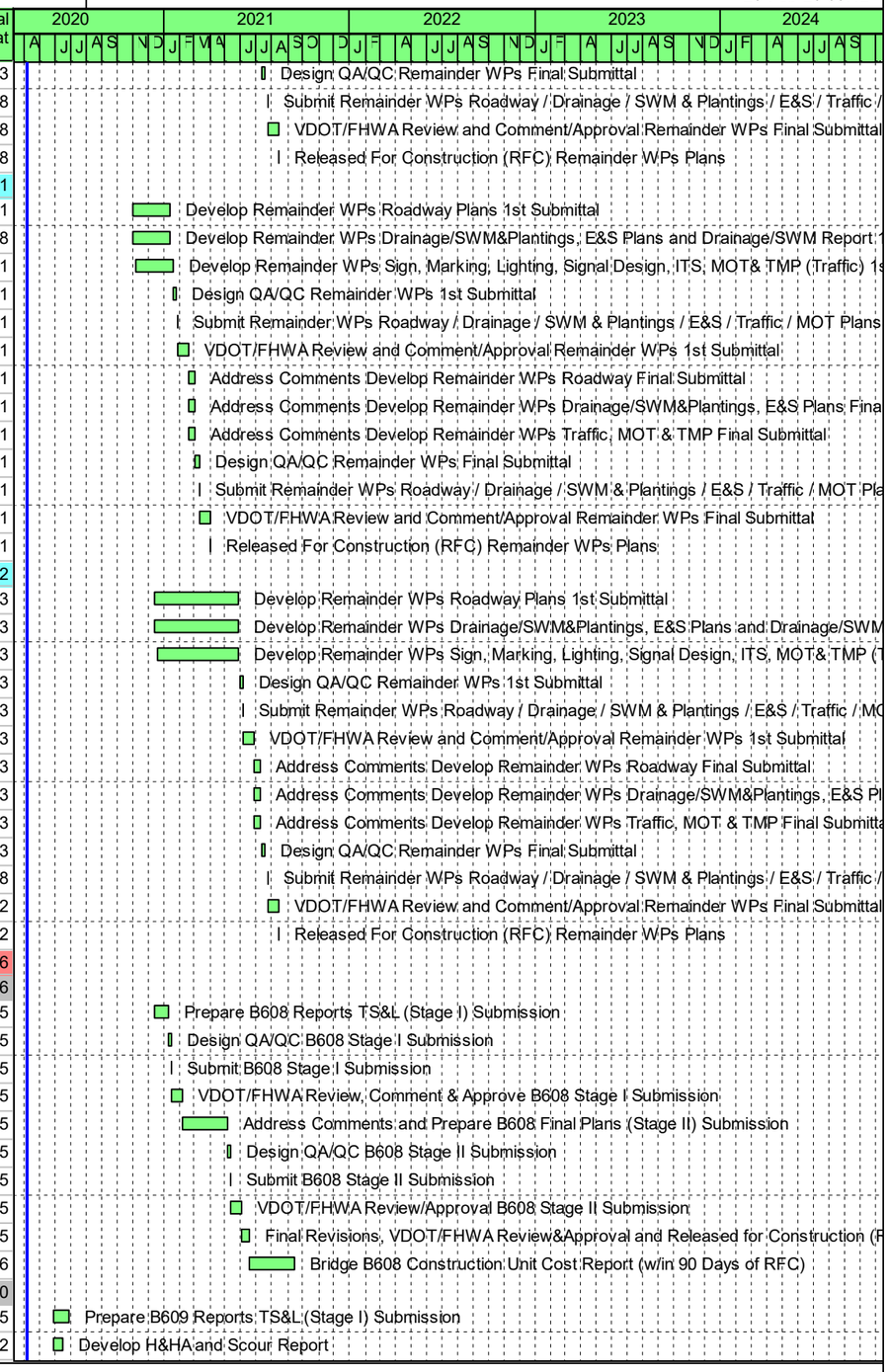
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
Design Exceptions & Waivers		56	56	12-Jun-20	06-Aug-20	161
D3620-0	Verify Approved DEs and DWs Implementation & Mitigation Measures	7	7	12-Jun-20	18-Jun-20	161
D1190-0	Agency Review and Meeting	21	21	19-Jun-20	09-Jul-20	161
D2980-0	Update & Resubmit Exception(s)/Waiver(s)	7	7	10-Jul-20	16-Jul-20	161
D1170-0	Agency Review & Approval of Exception(s)/Waiver(s)	21	21	17-Jul-20	06-Aug-20	161
Design Exceptions & Waivers - Option 1		56	56	12-Jun-20	06-Aug-20	161
D3620-1	Verify Approved DEs and DWs Implementation & Mitigation Measures	7	7	12-Jun-20	18-Jun-20	161
D1190-1	Agency Review and Meeting	21	21	19-Jun-20	09-Jul-20	161
D2980-1	Update & Resubmit Exception(s)/Waiver(s)	7	7	10-Jul-20	16-Jul-20	161
D1170-1	Agency Review & Approval of Exception(s)/Waiver(s)	21	21	17-Jul-20	06-Aug-20	161
Supplemental Mobile Scanning / Field Surveys		558	558	28-May-20	06-Dec-21	863
Mobile Scanning Surveys		48	48	28-May-20	14-Jul-20	170
D3100	VDOT Notification and Survey Mobilization	6	6	28-May-20	02-Jun-20	170
D2960	Surveying for Mobile Ground Controls	14	14	03-Jun-20	16-Jun-20	170
D2070	Mobile Map Compilation	28	28	17-Jun-20	14-Jul-20	170
Field Surveys		556	556	30-May-20	06-Dec-21	863
D2190-0	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	7	7	30-May-20	05-Jun-20	84
D3180-0	VDOT Review and Approve Property Owner Notification Letter	1	1	06-Jun-20	06-Jun-20	84
D2040-0	Mail Property Owner Notification Letters Providing 15 Day Notice	4	4	07-Jun-20	10-Jun-20	155
D2160-0	Perform Supplemental Field Surveys	42	42	25-Jun-20	05-Aug-20	155
D2690-0	Stake Geotechnical Boring Locations	7	7	25-Jun-20	01-Jul-20	82
D2320-0	Prepare Updates Survey Files	28	28	02-Jul-20	29-Jul-20	155
D2670-0	Set ROW Monumentation Prior to Contract Completion	43	43	25-Oct-21	06-Dec-21	863
Field Surveys - Option 1		556	556	30-May-20	06-Dec-21	863
D2190-1	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	7	7	30-May-20	05-Jun-20	84
D3180-1	VDOT Review and Approve Property Owner Notification Letter	1	1	06-Jun-20	06-Jun-20	84
D2040-1	Mail Property Owner Notification Letters Providing 15 Day Notice	4	4	07-Jun-20	10-Jun-20	155
D2160-1	Perform Supplemental Field Surveys	42	42	25-Jun-20	05-Aug-20	155
D2690-1	Stake Geotechnical Boring Locations	7	7	25-Jun-20	01-Jul-20	82
D2320-1	Prepare Updates Survey Files	28	28	02-Jul-20	29-Jul-20	155
D2670-1	Set ROW Monumentation Prior to Contract Completion	43	43	25-Oct-21	06-Dec-21	863
Geotechnical Engineering & Subsurface Investigations		421	421	29-May-20	23-Jul-21	483
D2210	Prepare and Submit Geotechnical Boring Location Plan	6	6	29-May-20	03-Jun-20	82
D3270	VDOT Review Geotechnical Boring Location Plan	21	21	04-Jun-20	24-Jun-20	82
D2660	Secure Permits and Clear Utilities as Required	21	21	04-Jun-20	24-Jun-20	83
D2280	Prepare Property Owner Notification Letters for Geotechnical Investigations	1	1	09-Jun-20	09-Jun-20	84
D1870-0	Field Investigations, Boring Logs and Lab Analysis for Scope Validation	92	92	26-Jun-20	25-Sep-20	82
D2640	Scope Validation Letter to Contractor	85	85	26-Jun-20	18-Sep-20	89
D2350	Prepare/Submit Bridge Geotechnical Engineering Report B609	28	28	10-Jul-20	06-Aug-20	106
D3210	VDOT Review Bridge Geotechnical Engineering Report B609	90	90	07-Aug-20	04-Nov-20	106
D2390	Prepare/Submit Bridge Geotechnical Engineering Report B608-Option 2	28	28	26-Sep-20	23-Oct-20	221
D3260	VDOT Review Bridge Geotechnical Engineering Report B608-Option 2	90	90	24-Oct-20	21-Jan-21	666
D2140	Perform Balance of Geotechnical Field Investigations (Noise Barrier & SWM)	58	58	06-Jan-21	04-Mar-21	68
D1250-0	Boring Logs, Laboratory Testing & Analysis	72	72	13-Jan-21	25-Mar-21	68
D2400	Prepare/Submit Noise Barrier Geotechnical Engineering Report	30	30	19-Mar-21	17-Apr-21	74
D2410	Prepare/Submit Retaining Wall Geotechnical Engineering Report	30	30	26-Mar-21	24-Apr-21	68
D2420-0	Prepare/Submit Roadway & SWM Geotechnical Engineering Report Remainder of Work Packages (WP's)	30	30	26-Mar-21	24-Apr-21	68



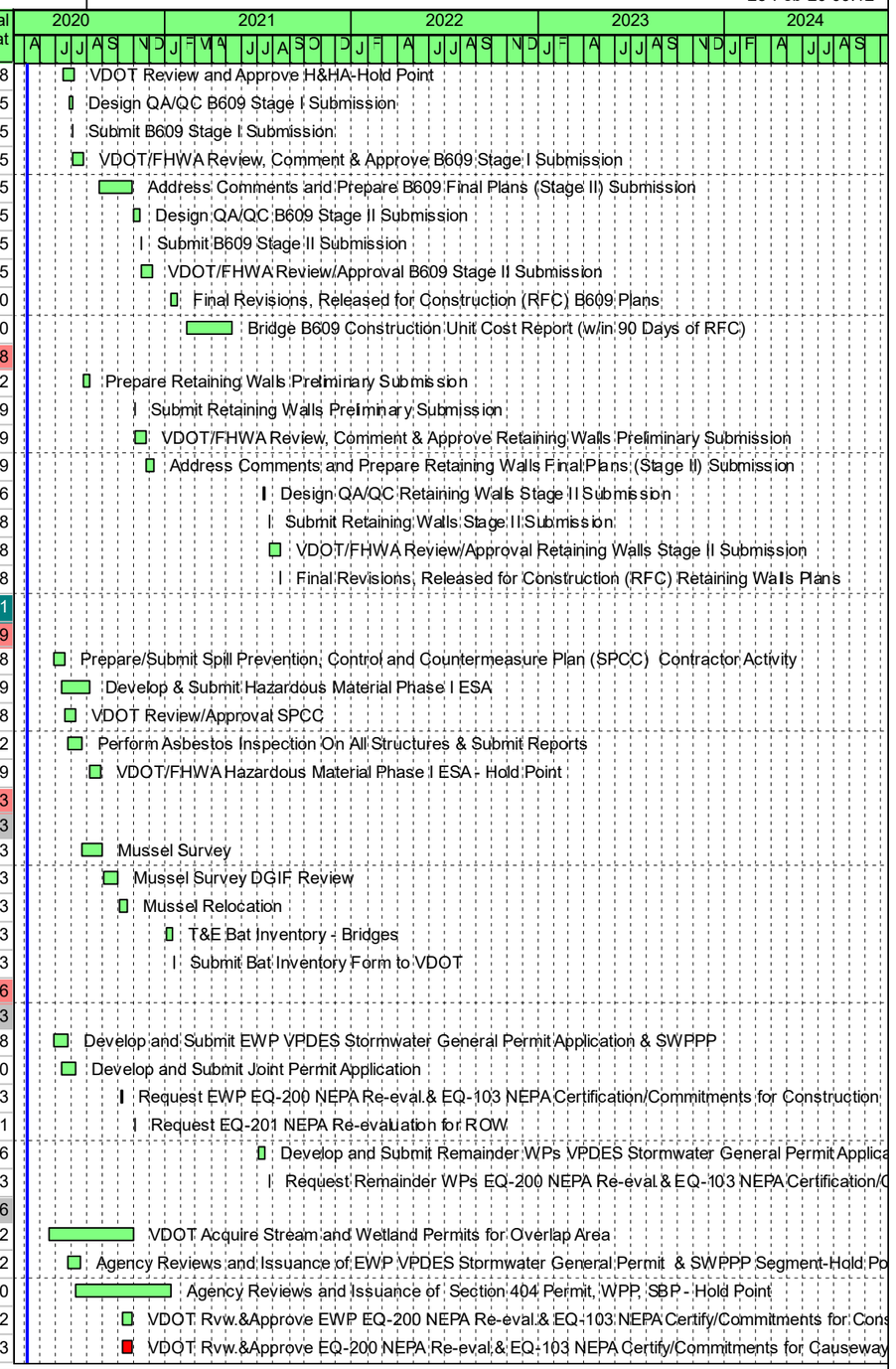
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
D3280	VDOT Review Noise Barrier Geotechnical Engineering Report	90	90	18-Apr-21	16-Jul-21	74
D3290	VDOT Review Retaining Walls Geotechnical Engineering Report	90	90	25-Apr-21	23-Jul-21	68
D3310-0	VDOT Review Roadway Geotechnical Engineering Report Remainder of WP's	90	90	25-Apr-21	23-Jul-21	68
Geotechnical Engineering & Subsurface Investigations - Option 1		393	393	26-Jun-20	23-Jul-21	68
D1870-1	Field Investigations, Boring Logs and Lab Analysis for Scope Validation	92	92	26-Jun-20	25-Sep-20	82
D1250-1	Boring Logs, Laboratory Testing & Analysis	72	72	13-Jan-21	25-Mar-21	68
D2420-1	Prepare/Submit Roadway & SWM Geotechnical Engineering Report Remainder of Work Packages (WP's)	30	30	26-Mar-21	24-Apr-21	68
D3310-1	VDOT Review Roadway Geotechnical Engineering Report Remainder of WP's	90	90	25-Apr-21	23-Jul-21	68
Roadway Design		444	444	28-May-20	14-Aug-21	692
Develop Right-of-Way Plans		220	220	29-May-20	03-Jan-21	91
D2570-0	Right-of-Way/Roadway Plan Development 1st Submittal	149	149	29-May-20	24-Oct-20	68
D1700-0	Develop Drainage/SWM, E&S Plans and Drainage/SWM Report 1st Submittal	149	149	29-May-20	24-Oct-20	73
D1840-0	Develop Signing, Marking, Lighting, Signal, ITS, MOT Plans & Draft TMP 1st Submittal	142	142	05-Jun-20	24-Oct-20	73
D1760-0	Develop Photometric Lighting Analysis & Calculations and Submit	14	14	10-Jul-20	23-Jul-20	166
D3000-0	Utilities Coordination & Easement Request	1	1	26-Aug-20	26-Aug-20	132
D1610-0	Design QA/QC ROW Plans 1st Submittal	7	7	25-Oct-20	31-Oct-20	73
D2910-0	Submit ROW Plans 1st Submittal	1	1	03-Nov-20	03-Nov-20	73
D3190-0	VDOT Review and Comment ROW Plans 1st Submittal	21	21	04-Nov-20	24-Nov-20	73
D1150-0	Address Comments Develop ROW Plans Final	15	15	25-Nov-20	09-Dec-20	73
D1630-0	Design QA/QC ROW Plans Final Submittal	2	2	10-Dec-20	11-Dec-20	73
D2930-0	Submit ROW Plans Final Submittal	1	1	12-Dec-20	12-Dec-20	73
D3130-0	VDOT Review / Approve ROW Plans Final	21	21	13-Dec-20	02-Jan-21	91
D2590-0	ROW Plans Approved	1	1	03-Jan-21	03-Jan-21	91
Early Work Package (EWP) Clearing / Grading / E&S / MOT & TMP		155	155	28-May-20	29-Oct-20	11
D1720-0	Develop EWP Clearing / Grading 1st Submittal	70	70	28-May-20	05-Aug-20	11
D1730-0	Develop EWP E&S Plans 1st Submittal	70	70	28-May-20	05-Aug-20	13
D1740-0	Develop EWP MOT & TMP 1st Submittal	65	65	04-Jun-20	07-Aug-20	11
D1540-0	Design QA/QC EWP 1st Submittal	8	8	08-Aug-20	15-Aug-20	11
D2830-0	Submit EWP Clearing / Grading / E&S / MOT Plans & TMP 1st Submittal	1	1	16-Aug-20	16-Aug-20	11
D3420-0	VDOT/FHWA Review and Comment EWP 1st Submittal	21	21	17-Aug-20	06-Sep-20	11
D1070-0	Address Comments Develop EWP E&S Plans Final Submittal	15	15	07-Sep-20	21-Sep-20	24
D1060-0	Address Comments Develop EWP Clearing / Grading Final Submittal	11	11	09-Sep-20	19-Sep-20	11
D1080-0	Address Comments Develop EWP MOT & TMP Final Submittal	15	15	20-Sep-20	04-Oct-20	11
D1550-0	Design QA/QC EWP Final Submittal	2	2	05-Oct-20	06-Oct-20	11
D2840-0	Submit EWP Clearing / Grading / E&S / MOT Plans & TMP Final Submittal	1	1	07-Oct-20	07-Oct-20	11
D3600-0	VDOT/FHWA Review/Approve and Comment EWP Final Submittal	21	21	08-Oct-20	28-Oct-20	11
D2470-0	Released For Construction (RFC) EWP Plans	1	1	29-Oct-20	29-Oct-20	11
Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP		289	289	30-Oct-20	14-Aug-21	692
D1800-0	Develop Remainder WPs Roadway Plans 1st Submittal	167	167	13-Dec-20	28-May-21	73
D1780-0	Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans and Drainage/SWM Report 1st Submittal	167	167	13-Dec-20	28-May-21	73
D1820-0	Develop Remainder WPs Sign, Marking, Lighting, Signal Design, ITS, MOT& TMP (Traffic) 1st Submittal	160	160	20-Dec-20	28-May-21	73
D1560-0	Design QA/QC Remainder WPs 1st Submittal	7	7	29-May-21	04-Jun-21	73
D2850-0	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP 1st Su	1	1	05-Jun-21	05-Jun-21	73
D3430-0	VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	21	21	06-Jun-21	26-Jun-21	73
D1110-0	Address Comments Develop Remainder WPs Roadway Final Submittal	14	14	27-Jun-21	10-Jul-21	73
D1090-0	Address Comments Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans Final Submittal	14	14	27-Jun-21	10-Jul-21	73
D1130-0	Address Comments Develop Remainder WPs Traffic, MOT & TMP Final Submittal	14	14	27-Jun-21	10-Jul-21	73



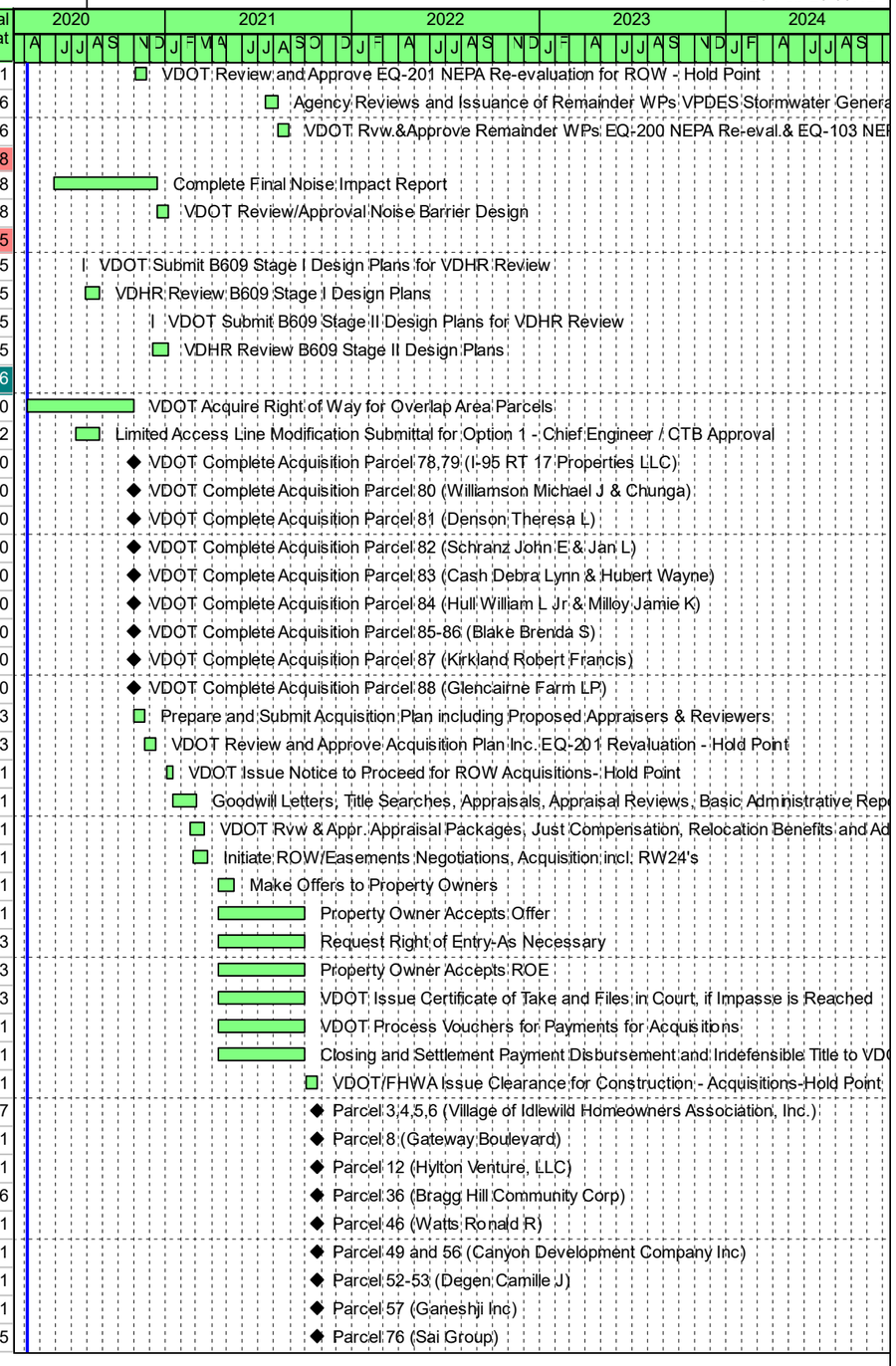
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
D1580-0	Design QA/QC Remainder WPs Final Submittal	7	7	11-Jul-21	17-Jul-21	73
D2870-0	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP Final S	1	1	23-Jul-21	23-Jul-21	68
D3450-0	VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal	21	21	24-Jul-21	13-Aug-21	68
D2480-0	Released For Construction (RFC) Remainder WPs Plans	1	1	14-Aug-21	14-Aug-21	68
Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Overlap Area		155	155	30-Oct-20	02-Apr-21	11
D1800-11	Develop Remainder WPs Roadway Plans 1st Submittal	75	75	30-Oct-20	12-Jan-21	11
D1780-11	Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans and Drainage/SWM Report 1st Submittal	75	75	30-Oct-20	12-Jan-21	18
D1820-11	Develop Remainder WPs Sign, Marking, Lighting, Signal Design, ITS, MOT& TMP (Traffic) 1st Submittal	75	75	06-Nov-20	19-Jan-21	11
D1560-11	Design QA/QC Remainder WPs 1st Submittal	7	7	20-Jan-21	26-Jan-21	11
D2850-11	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP 1st Su	1	1	27-Jan-21	27-Jan-21	11
D3430-11	VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	21	21	28-Jan-21	17-Feb-21	11
D1110-11	Address Comments Develop Remainder WPs Roadway Final Submittal	14	14	18-Feb-21	03-Mar-21	11
D1090-11	Address Comments Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans Final Submittal	14	14	18-Feb-21	03-Mar-21	11
D1130-11	Address Comments Develop Remainder WPs Traffic, MOT & TMP Final Submittal	14	14	18-Feb-21	03-Mar-21	11
D1580-11	Design QA/QC Remainder WPs Final Submittal	7	7	04-Mar-21	10-Mar-21	11
D2870-11	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP Final S	1	1	11-Mar-21	11-Mar-21	11
D3450-11	VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal	21	21	12-Mar-21	01-Apr-21	11
D2480-11	Released For Construction (RFC) Remainder WPs Plans	1	1	02-Apr-21	02-Apr-21	11
Remainder of Work Packages (WP's) Roadway/Drainage/SWM/E&S/Traffic/MOT & TMP - Option 1		245	245	13-Dec-20	14-Aug-21	692
D1800-1	Develop Remainder WPs Roadway Plans 1st Submittal	167	167	13-Dec-20	28-May-21	73
D1780-1	Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans and Drainage/SWM Report 1st Submittal	167	167	13-Dec-20	28-May-21	73
D1820-1	Develop Remainder WPs Sign, Marking, Lighting, Signal Design, ITS, MOT& TMP (Traffic) 1st Submittal	160	160	20-Dec-20	28-May-21	73
D1560-1	Design QA/QC Remainder WPs 1st Submittal	7	7	29-May-21	04-Jun-21	73
D2850-1	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP 1st Su	1	1	05-Jun-21	05-Jun-21	73
D3430-1	VDOT/FHWA Review and Comment/Approval Remainder WPs 1st Submittal	21	21	06-Jun-21	26-Jun-21	73
D1110-1	Address Comments Develop Remainder WPs Roadway Final Submittal	14	14	27-Jun-21	10-Jul-21	73
D1090-1	Address Comments Develop Remainder WPs Drainage/SWM&Plantings, E&S Plans Final Submittal	14	14	27-Jun-21	10-Jul-21	73
D1130-1	Address Comments Develop Remainder WPs Traffic, MOT & TMP Final Submittal	14	14	27-Jun-21	10-Jul-21	73
D1580-1	Design QA/QC Remainder WPs Final Submittal	7	7	11-Jul-21	17-Jul-21	73
D2870-1	Submit Remainder WPs Roadway / Drainage / SWM & Plantings / E&S / Traffic / MOT Plans & TMP Final S	1	1	23-Jul-21	23-Jul-21	68
D3450-1	VDOT/FHWA Review and Comment/Approval Remainder WPs Final Submittal	21	21	24-Jul-21	13-Aug-21	692
D2480-1	Released For Construction (RFC) Remainder WPs Plans	1	1	14-Aug-21	14-Aug-21	692
Bridge Design		475	475	28-May-20	14-Sep-21	946
Bridge B608 I-95 NB CD Lanes Over Route 17		276	276	13-Dec-20	14-Sep-21	946
D2260	Prepare B608 Reports TS&L (Stage I) Submission	28	28	13-Dec-20	09-Jan-21	555
D1520	Design QA/QC B608 Stage I Submission	5	5	10-Jan-21	14-Jan-21	555
D2800	Submit B608 Stage I Submission	1	1	15-Jan-21	15-Jan-21	555
D3510	VDOT/FHWA Review, Comment & Approve B608 Stage I Submission	21	21	16-Jan-21	05-Feb-21	555
D1040	Address Comments and Prepare B608 Final Plans (Stage II) Submission	88	88	06-Feb-21	04-May-21	555
D1530	Design QA/QC B608 Stage II Submission	7	7	05-May-21	11-May-21	555
D2810	Submit B608 Stage II Submission	1	1	12-May-21	12-May-21	555
D3580	VDOT/FHWA Review/Approval B608 Stage II Submission	21	21	13-May-21	02-Jun-21	555
D1950	Final Revisions, VDOT/FHWA Review&Approval and Released for Construction (RFC) B608 Plans	14	14	03-Jun-21	16-Jun-21	555
D1320	Bridge B608 Construction Unit Cost Report (w/in 90 Days of RFC)	90	90	17-Jun-21	14-Sep-21	946
Bridge B609 I-95 NB GP Lanes Over Rappahannock River		351	351	28-May-20	13-May-21	1070
D2220	Prepare B609 Reports TS&L (Stage I) Submission	30	30	28-May-20	26-Jun-20	95
D1750	Develop H&HA and Scour Report	20	20	28-May-20	16-Jun-20	112



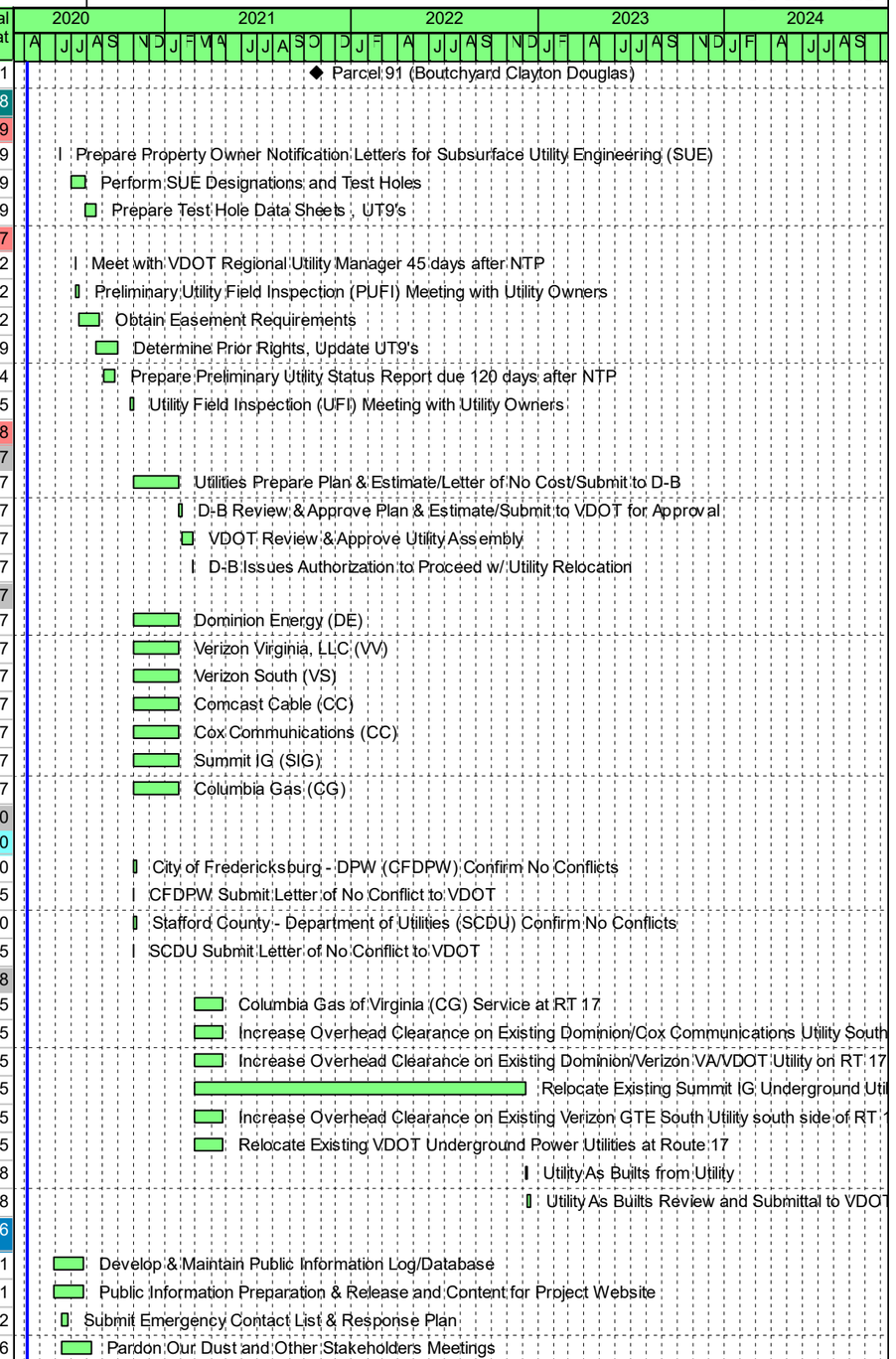
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
D1760	VDOT Review and Approve H&HA-Hold Point	21	21	16-Jun-20	07-Jul-20	278
D1430	Design QA/QC B609 Stage I Submission	7	7	27-Jun-20	03-Jul-20	95
D2710	Submit B609 Stage I Submission	1	1	04-Jul-20	04-Jul-20	95
D3470	VDOT/FHWA Review, Comment & Approve B609 Stage I Submission	21	21	05-Jul-20	25-Jul-20	95
D1000	Address Comments and Prepare B609 Final Plans (Stage II) Submission	65	65	26-Aug-20	29-Oct-20	95
D1440	Design QA/QC B609 Stage II Submission	12	12	01-Nov-20	12-Nov-20	95
D2720	Submit B609 Stage II Submission	1	1	15-Nov-20	15-Nov-20	95
D3540	VDOT/FHWA Review/Approval B609 Stage II Submission	21	21	16-Nov-20	06-Dec-20	95
D1890	Final Revisions, Released for Construction (RFC) B609 Plans	15	15	12-Jan-21	26-Jan-21	90
D1280	Bridge B609 Construction Unit Cost Report (w/in 90 Days of RFC)	90	90	13-Feb-21	13-May-21	1070
Retaining Walls		387	387	24-Jul-20	14-Aug-21	68
D2300	Prepare Retaining Walls Preliminary Submission	14	14	24-Jul-20	06-Aug-20	152
D2890	Submit Retaining Walls Preliminary Submission	1	1	03-Nov-20	03-Nov-20	289
D3520	VDOT/FHWA Review, Comment & Approve Retaining Walls Preliminary Submission	21	21	04-Nov-20	24-Nov-20	289
D1050	Address Comments and Prepare Retaining Walls Final Plans (Stage II) Submission	15	15	25-Nov-20	09-Dec-20	289
D1600	Design QA/QC Retaining Walls Stage II Submission	4	4	11-Jul-21	14-Jul-21	76
D2900	Submit Retaining Walls Stage II Submission	1	1	23-Jul-21	23-Jul-21	68
D3590	VDOT/FHWA Review/Approval Retaining Walls Stage II Submission	21	21	24-Jul-21	13-Aug-21	68
D1910	Final Revisions, Released for Construction (RFC) Retaining Walls Plans	1	1	14-Aug-21	14-Aug-21	68
Environmental		468	468	20-May-20	30-Aug-21	991
Hazardous Materials		92	92	28-May-20	27-Aug-20	1359
D2440	Prepare/Submit Spill Prevention, Control and Countermeasure Plan (SPCC) Contractor Activity	22	22	28-May-20	18-Jun-20	1408
D1660	Develop & Submit Hazardous Material Phase I ESA	56	56	12-Jun-20	06-Aug-20	279
D3330	VDOT Review/Approval SPCC	21	21	19-Jun-20	09-Jul-20	1408
D2130	Perform Asbestos Inspection On All Structures & Submit Reports	28	28	26-Jun-20	23-Jul-20	262
D3400	VDOT/FHWA Hazardous Material Phase I ESA - Hold Point	21	21	07-Aug-20	27-Aug-20	279
Threatened & Endangered Species		182	182	22-Jul-20	19-Jan-21	763
Bat Species & Mussel Inventory		182	182	22-Jul-20	19-Jan-21	763
D2090	Mussel Survey	42	42	22-Jul-20	01-Sep-20	73
D2100	Mussel Survey DGIF Review	30	30	02-Sep-20	01-Oct-20	73
D2080	Mussel Relocation	15	15	04-Oct-20	18-Oct-20	73
D2970	T&E Bat Inventory - Bridges	13	13	04-Jan-21	16-Jan-21	763
D2820	Submit Bat Inventory Form to VDOT	1	1	19-Jan-21	19-Jan-21	763
Environmental Permits		468	468	20-May-20	30-Aug-21	146
Environmental Permit Applications		421	421	29-May-20	23-Jul-21	163
D1670	Develop and Submit EWP VPDES Stormwater General Permit Application & SWPPP	28	28	29-May-20	25-Jun-20	118
D1680	Develop and Submit Joint Permit Application	28	28	13-Jun-20	10-Jul-20	90
D2530	Request EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certification/Commitments for Construction	1	1	08-Oct-20	08-Oct-20	13
D2520	Request EQ-201 NEPA Re-evaluation for ROW	1	1	03-Nov-20	03-Nov-20	131
D1690	Develop and Submit Remainder WPs VPDES Stormwater General Permit Application & SWPPP	12	12	04-Jul-21	15-Jul-21	146
D2540	Request Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certification/Commitments for Construct	1	1	23-Jul-21	23-Jul-21	163
Issuance & Approval of Environmental Permits (All Permitted Construction Activities are Hold Points)		468	468	20-May-20	30-Aug-21	146
D3860	VDOT Acquire Stream and Wetland Permits for Overlap Area	164	164	20-May-20	30-Oct-20	2
D1220	Agency Reviews and Issuance of EWP VPDES Stormwater General Permit & SWPPP Segment-Hold Poir	25	25	26-Jun-20	20-Jul-20	142
D1210	Agency Reviews and Issuance of Section 404 Permit, WPP, SBP - Hold Point	185	185	11-Jul-20	11-Jan-21	90
D3360	VDOT Rvw.&Approve EWP EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const.-Hold I	21	21	09-Oct-20	29-Oct-20	62
D3350	VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Causeway	21	21	09-Oct-20	29-Oct-20	13



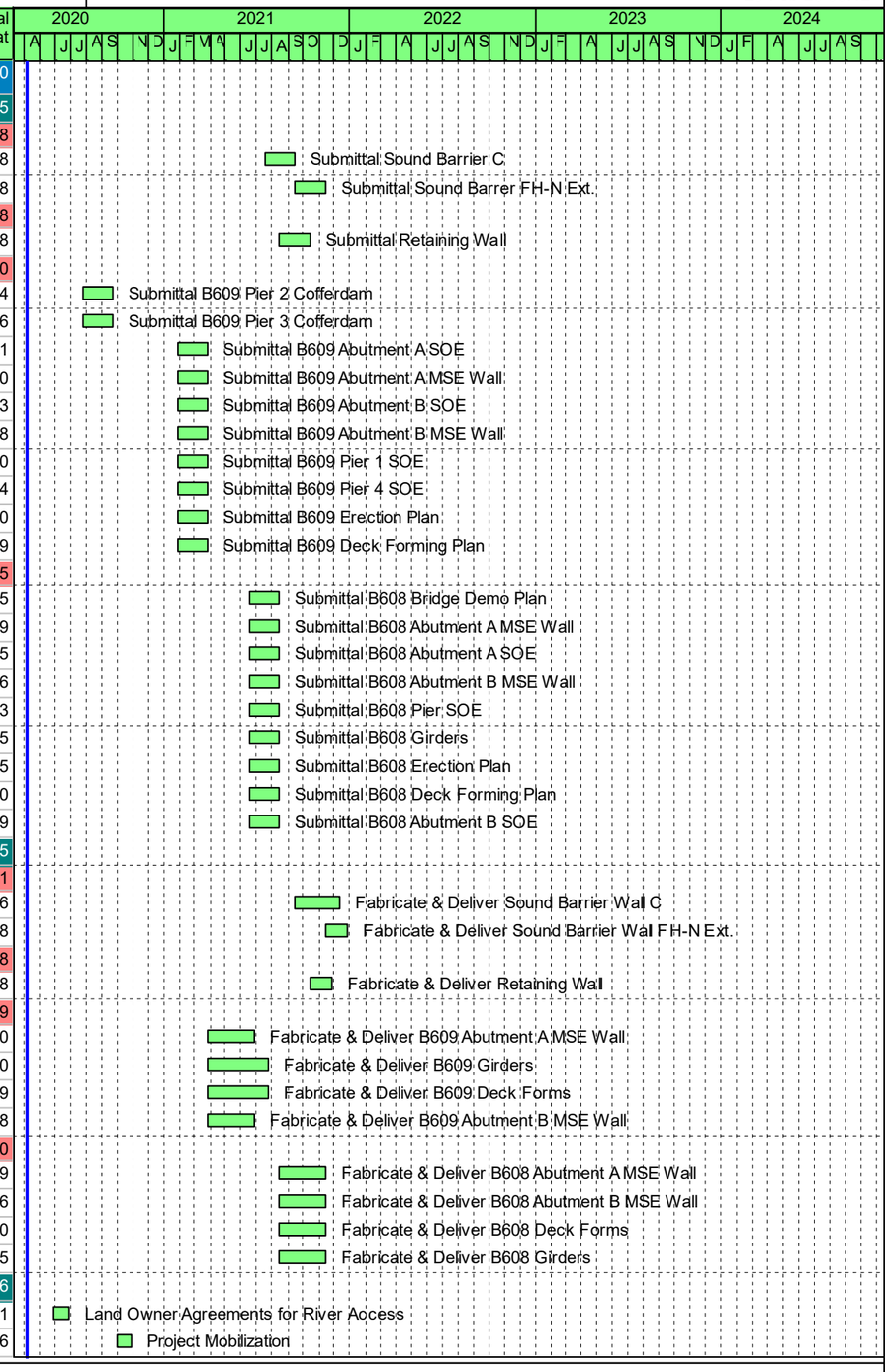
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
D3160	VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point	21	21	04-Nov-20	24-Nov-20	131
D1230	Agency Reviews and Issuance of Remainder WPs VPDES Stormwater General Permit & SWPPP-Hold Pc	25	25	16-Jul-21	09-Aug-21	146
D3370	VDOT Rvw.&Approve Remainder WPs EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for C	21	21	10-Aug-21	30-Aug-21	146
Noise Abatement		222	222	29-May-20	05-Jan-21	68
D1390	Complete Final Noise Impact Report	201	201	29-May-20	15-Dec-20	68
D3320	VDOT Review/Approval Noise Barrier Design	21	21	16-Dec-20	05-Jan-21	68
VDHR Plan Review		165	165	26-Jul-20	06-Jan-21	95
D3380	VDOT Submit B609 Stage I Design Plans for VDHR Review	1	1	26-Jul-20	26-Jul-20	95
D3060	VDHR Review B609 Stage I Design Plans	30	30	27-Jul-20	25-Aug-20	95
D3390	VDOT Submit B609 Stage II Design Plans for VDHR Review	1	1	07-Dec-20	07-Dec-20	95
D3070	VDHR Review B609 Stage II Design Plans	30	30	08-Dec-20	06-Jan-21	95
Right-of-Way		567	567	06-Apr-20	24-Oct-21	906
D3850	VDOT Acquire Right of Way for Overlap Area Parcels	208	208	06-Apr-20	30-Oct-20	0
D2030	Limited Access Line Modification Submittal for Option 1 - Chief Engineer / CTB Approval	45	45	11-Jul-20	24-Aug-20	1332
D3750	VDOT Complete Acquisition Parcel 78,79 (I-95 RT 17 Properties LLC)	0	0		30-Oct-20	0
D3760	VDOT Complete Acquisition Parcel 80 (Williamson Michael J & Chunga)	0	0		30-Oct-20	0
D3770	VDOT Complete Acquisition Parcel 81 (Denson Theresa L)	0	0		30-Oct-20	0
D3780	VDOT Complete Acquisition Parcel 82 (Schranz John E & Jan L)	0	0		30-Oct-20	0
D3790	VDOT Complete Acquisition Parcel 83 (Cash Debra Lynn & Hubert Wayne)	0	0		30-Oct-20	0
D3800	VDOT Complete Acquisition Parcel 84 (Hull William L Jr & Milloy Jamie K)	0	0		30-Oct-20	0
D3810	VDOT Complete Acquisition Parcel 85-86 (Blake Brenda S)	0	0		30-Oct-20	0
D3820	VDOT Complete Acquisition Parcel 87 (Kirkland Robert Francis)	0	0		30-Oct-20	0
D3830	VDOT Complete Acquisition Parcel 88 (Glencairne Farm LP)	0	0		30-Oct-20	0
D2200	Prepare and Submit Acquisition Plan including Proposed Appraisers & Reviewers	21	21	01-Nov-20	21-Nov-20	113
D3150	VDOT Review and Approve Acquisition Plan Inc. EQ-201 Revaluation - Hold Point	21	21	22-Nov-20	12-Dec-20	113
D3090	VDOT Issue Notice to Proceed for ROW Acquisitions- Hold Point	13	13	04-Jan-21	16-Jan-21	91
D1960	Goodwill Letters, Title Searches, Appraisals, Appraisal Reviews, Basic Administrative Reports & RUMS Inp	46	46	17-Jan-21	03-Mar-21	91
D3340	VDOT Rvw & Appr. Appraisal Packages, Just Compensation, Relocation Benefits and Admin. Settlements-	31	31	17-Feb-21	19-Mar-21	91
D2020	Initiate ROW/Easements Negotiations, Acquisition incl. RW24's	30	30	24-Feb-21	25-Mar-21	91
D2050	Make Offers to Property Owners	33	33	13-Apr-21	15-May-21	91
D2450	Property Owner Accepts Offer	169	169	13-Apr-21	28-Sep-21	91
D2550	Request Right of Entry-As Necessary	169	169	13-Apr-21	28-Sep-21	253
D2460	Property Owner Accepts ROE	169	169	13-Apr-21	28-Sep-21	253
D3080	VDOT Issue Certificate of Take and Files in Court, if Impasse is Reached	169	169	13-Apr-21	28-Sep-21	253
D3110	VDOT Process Vouchers for Payments for Acquisitions	169	169	13-Apr-21	28-Sep-21	91
D1360	Closing and Settlement Payment Disbursement and Indefensible Title to VDOT-Acquisitions	169	169	13-Apr-21	28-Sep-21	91
D3410	VDOT/FHWA Issue Clearance for Construction - Acquisitions-Hold Point	21	21	04-Oct-21	24-Oct-21	91
D3660	Parcel 3,4,5,6 (Village of Idlewild Homeowners Association, Inc.)	0	0		24-Oct-21	227
D3670	Parcel 8 (Gateway Boulevard)	0	0		24-Oct-21	91
D3680	Parcel 12 (Hylton Venture, LLC)	0	0		24-Oct-21	91
D3690	Parcel 36 (Bragg Hill Community Corp)	0	0		24-Oct-21	196
D3700	Parcel 46 (Watts Ronald R)	0	0		24-Oct-21	541
D3710	Parcel 49 and 56 (Canyon Development Company Inc)	0	0		24-Oct-21	171
D3720	Parcel 52-53 (Degen Camille J)	0	0		24-Oct-21	171
D3730	Parcel 57 (Ganeshji Inc)	0	0		24-Oct-21	171
D3740	Parcel 76 (Sai Group)	0	0		24-Oct-21	245



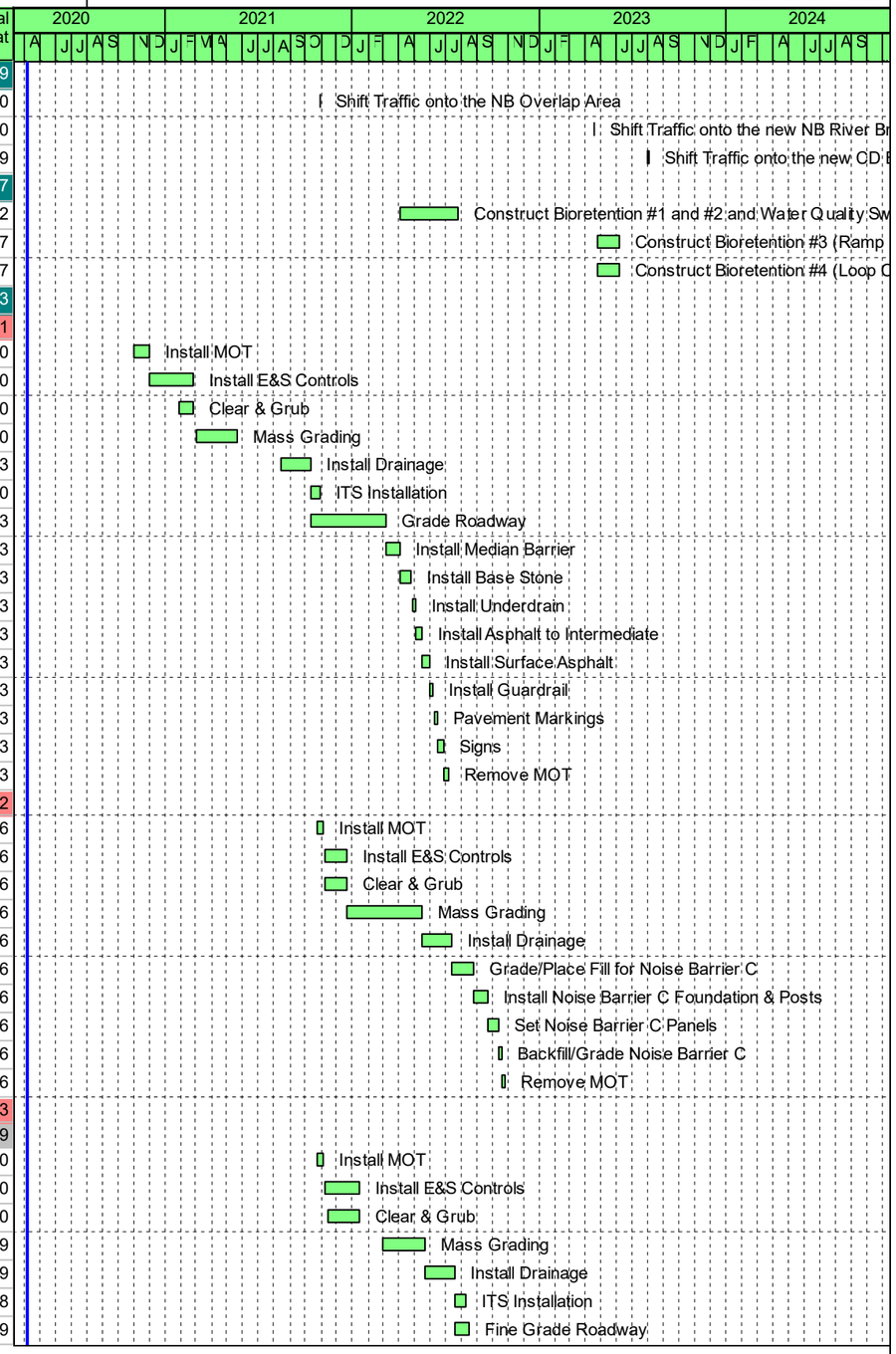
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
D3840	Parcel 91 (Boutchyard Clayton Douglas)	0	0		24-Oct-21	621
Utilities		921	921	09-Jun-20	16-Dec-22	488
Utility Delineation		70	70	09-Jun-20	17-Aug-20	459
D2290	Prepare Property Owner Notification Letters for Subsurface Utility Engineering (SUE)	1	1	09-Jun-20	09-Jun-20	459
D2150	Perform SUE Designations and Test Holes	28	28	30-Jun-20	27-Jul-20	459
D2310	Prepare Test Hole Data Sheets , UT9's	21	21	28-Jul-20	17-Aug-20	459
Utility Coordination		115	115	09-Jul-20	31-Oct-20	427
D2060	Meet with VDOT Regional Utility Manager 45 days after NTP	1	1	09-Jul-20	09-Jul-20	362
D2180	Preliminary Utility Field Inspection (PUFI) Meeting with Utility Owners	7	7	09-Jul-20	15-Jul-20	132
D2120	Obtain Easement Requirements	41	41	16-Jul-20	25-Aug-20	132
D1650	Determine Prior Rights, Update UT9's	43	43	18-Aug-20	29-Sep-20	459
D2270	Prepare Preliminary Utility Status Report due 120 days after NTP	21	21	04-Sep-20	24-Sep-20	464
D3050	Utility Field Inspection (UFI) Meeting with Utility Owners	7	7	25-Oct-20	31-Oct-20	255
Utility Design (By Others)		776	776	01-Nov-20	16-Dec-22	488
Utility Relocation Design		117	117	01-Nov-20	25-Feb-21	427
D3020	Utilities Prepare Plan & Estimate/Letter of No Cost/Submit to D-B	88	88	01-Nov-20	27-Jan-21	427
D1420	D-B Review & Approve Plan & Estimate/Submit to VDOT for Approval	7	7	28-Jan-21	03-Feb-21	427
D3120	VDOT Review & Approve Utility Assembly	21	21	04-Feb-21	24-Feb-21	427
D1410	D-B Issues Authorization to Proceed w/ Utility Relocation	1	1	25-Feb-21	25-Feb-21	427
Utility P&E Development		88	88	01-Nov-20	27-Jan-21	427
D1860	Dominion Energy (DE)	88	88	01-Nov-20	27-Jan-21	427
D3650	Verizon Virginia, LLC (VV)	88	88	01-Nov-20	27-Jan-21	427
D3640	Verizon South (VS)	88	88	01-Nov-20	27-Jan-21	427
D1380	Comcast Cable (CC)	88	88	01-Nov-20	27-Jan-21	427
D1400	Cox Communications (CC)	88	88	01-Nov-20	27-Jan-21	427
D2950	Summit IG (SIG)	88	88	01-Nov-20	27-Jan-21	427
D3870	Columbia Gas (CG)	88	88	01-Nov-20	27-Jan-21	427
No Conflict Utilities		7	7	01-Nov-20	07-Nov-20	1250
Utilities with No Conflict		7	7	01-Nov-20	07-Nov-20	1250
D1350	City of Fredericksburg - DPW (CFDPW) Confirm No Conflicts	7	7	01-Nov-20	07-Nov-20	1250
D1330	CFDPW Submit Letter of No Conflict to VDOT	1	1	01-Nov-20	01-Nov-20	255
D2680	Stafford County - Department of Utilities (SCDU) Confirm No Conflicts	7	7	01-Nov-20	07-Nov-20	1250
D2610	SCDU Submit Letter of No Conflict to VDOT	1	1	01-Nov-20	01-Nov-20	255
Utility Relocation Construction		659	659	26-Feb-21	16-Dec-22	488
D1370	Columbia Gas of Virginia (CG) Service at RT 17	40	40	26-Feb-21	23-Apr-21	295
D1980	Increase Overhead Clearance on Existing Dominion/Cox Communications Utility South of RT 17	40	40	26-Feb-21	23-Apr-21	745
D2000	Increase Overhead Clearance on Existing Dominion/Verizon VA/VDOT Utility on RT 17 at Ramp C	40	40	26-Feb-21	23-Apr-21	745
D2500	Relocate Existing Summit IG Underground Utilities	450	450	26-Feb-21	08-Dec-22	335
D2010	Increase Overhead Clearance on Existing Verizon GTE South Utility south side of RT 17	40	40	26-Feb-21	23-Apr-21	745
D2510	Relocate Existing VDOT Underground Power Utilities at Route 17	40	40	26-Feb-21	23-Apr-21	745
D3030	Utility As Builts from Utility	1	1	09-Dec-22	09-Dec-22	488
D3040	Utility As Builts Review and Submittal to VDOT	7	7	10-Dec-22	16-Dec-22	488
Public Involvement		75	75	28-May-20	10-Aug-20	1376
G1130	Develop & Maintain Public Information Log/Database	60	60	28-May-20	26-Jul-20	1391
G1140	Public Information Preparation & Release and Content for Project Website	60	60	28-May-20	26-Jul-20	1391
G1120	Submit Emergency Contact List & Response Plan	14	14	12-Jun-20	25-Jun-20	1422
G1150	Pardon Our Dust and Other Stakeholders Meetings	60	60	12-Jun-20	10-Aug-20	1376



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
Construction		1421	1421	28-May-20	17-Apr-24	30
Construction Submittals		478	478	24-Jul-20	13-Nov-21	645
Noise Barrier		120	120	17-Jul-21	13-Nov-21	138
CG1590	Submittal Sound Barrier C	60	60	17-Jul-21	14-Sep-21	138
CG1600	Submittal Sound Barrer FH-N Ext.	60	60	14-Sep-21	13-Nov-21	138
Retaining Walls		60	60	14-Aug-21	13-Oct-21	68
C1110	Submittal Retaining Wall	60	60	14-Aug-21	13-Oct-21	68
B609 Rappahannock River Bridge		247	247	24-Jul-20	27-Mar-21	320
CG1300	Submittal B609 Pier 2 Cofferdam	60	60	24-Jul-20	21-Sep-20	324
CG1310	Submittal B609 Pier 3 Cofferdam	60	60	24-Jul-20	21-Sep-20	296
CG1230	Submittal B609 Abutment A SOE	60	60	27-Jan-21	27-Mar-21	151
CG1220	Submittal B609 Abutment A MSE Wall	60	60	27-Jan-21	27-Mar-21	90
CG1250	Submittal B609 Abutment B SOE	60	60	27-Jan-21	27-Mar-21	123
CG1240	Submittal B609 Abutment B MSE Wall	60	60	27-Jan-21	27-Mar-21	178
CG1290	Submittal B609 Pier 1 SOE	60	60	27-Jan-21	27-Mar-21	130
CG1320	Submittal B609 Pier 4 SOE	60	60	27-Jan-21	27-Mar-21	194
CG1270	Submittal B609 Erection Plan	60	60	27-Jan-21	27-Mar-21	320
CG1260	Submittal B609 Deck Forming Plan	60	60	27-Jan-21	27-Mar-21	309
Bridge B608 I-95 NB CD Lanes over Route 17		60	60	17-Jun-21	15-Aug-21	735
CG1540	Submittal B608 Bridge Demo Plan	60	60	17-Jun-21	15-Aug-21	555
CG1500	Submittal B608 Abutment A MSE Wall	60	60	17-Jun-21	15-Aug-21	579
CG1510	Submittal B608 Abutment A SOE	60	60	17-Jun-21	15-Aug-21	605
CG1520	Submittal B608 Abutment B MSE Wall	60	60	17-Jun-21	15-Aug-21	586
CG1580	Submittal B608 Pier SOE	60	60	17-Jun-21	15-Aug-21	633
CG1570	Submittal B608 Girders	60	60	17-Jun-21	15-Aug-21	645
CG1560	Submittal B608 Erection Plan	60	60	17-Jun-21	15-Aug-21	735
CG1550	Submittal B608 Deck Forming Plan	60	60	17-Jun-21	15-Aug-21	660
CG1530	Submittal B608 Abutment B SOE	60	60	17-Jun-21	15-Aug-21	619
Acquisitions		276	276	28-Mar-21	28-Dec-21	615
Noise Barrier Wall		105	105	15-Sep-21	28-Dec-21	411
CG1180	Fabricate & Deliver Sound Barrier Wall C	90	90	15-Sep-21	13-Dec-21	426
CG1200	Fabricate & Deliver Sound Barrier Wall FH-N Ext.	45	45	13-Nov-21	28-Dec-21	138
Retaining Walls		45	45	13-Oct-21	27-Nov-21	68
C1120	Fabricate & Deliver Retaining Wall	45	45	13-Oct-21	27-Nov-21	68
B609 Rappahannock River Bridge		120	120	28-Mar-21	25-Jul-21	309
CG1020	Fabricate & Deliver B609 Abutment A MSE Wall	90	90	28-Mar-21	25-Jun-21	90
CG1050	Fabricate & Deliver B609 Girders	120	120	28-Mar-21	25-Jul-21	200
CG1040	Fabricate & Deliver B609 Deck Forms	120	120	28-Mar-21	25-Jul-21	309
CG1030	Fabricate & Deliver B609 Abutment B MSE Wall	90	90	28-Mar-21	25-Jun-21	178
Bridge B608 I-95 NB CD Lanes over Route 17		90	90	16-Aug-21	13-Nov-21	660
CG1140	Fabricate & Deliver B608 Abutment A MSE Wall	90	90	16-Aug-21	13-Nov-21	579
CG1150	Fabricate & Deliver B608 Abutment B MSE Wall	90	90	16-Aug-21	13-Nov-21	586
CG1160	Fabricate & Deliver B608 Deck Forms	90	90	16-Aug-21	13-Nov-21	660
CG1170	Fabricate & Deliver B608 Girders	90	90	16-Aug-21	13-Nov-21	645
Mobilization		155	155	28-May-20	29-Oct-20	1296
CG1190	Land Owner Agreements for River Access	30	30	28-May-20	26-Jun-20	1421
CG1210	Project Mobilization	20	20	02-Oct-20	29-Oct-20	186



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
Major Traffic Shifts		642	642	29-Oct-21	02-Aug-23	259
C1140	Shift Traffic onto the NB Overlap Area	1	1	29-Oct-21	30-Oct-21	0
C1130	Shift Traffic onto the new NB River Bridge	1	1	17-Apr-23	18-Apr-23	0
C1180	Shift Traffic onto the new CD Bridge	1	1	01-Aug-23	02-Aug-23	259
SWM		255	255	05-Apr-22	05-Jun-23	177
CNSW1010	Construct Bioretention #1 and #2 and Water Quality Swale (Loop B)	80	80	05-Apr-22	27-Jul-22	352
CNSW1000	Construct Bioretention #3 (Ramp D)	30	30	24-Apr-23	05-Jun-23	177
CNSW1020	Construct Bioretention #4 (Loop C)	30	30	24-Apr-23	05-Jun-23	177
Improvements South of Rappahannock River Bridge (Geographical Area 1)		993	993	30-Oct-20	19-Jul-23	273
I-95 NB GP (Phase S1)		616	616	30-Oct-20	07-Jul-22	251
CSGP1000	Install MOT	20	20	30-Oct-20	30-Nov-20	160
CSGP1010	Install E&S Controls	60	60	01-Dec-20	25-Feb-21	160
CSGP1020	Clear & Grub	20	20	29-Jan-21	25-Feb-21	160
CSGP1030	Mass Grading	60	60	01-Mar-21	21-May-21	160
CSGP1040	Install Drainage	40	40	16-Aug-21	11-Oct-21	143
CSGP1070	ITS Installation	20	20	11-Oct-21	31-Oct-21	360
CSGP1050	Grade Roadway	100	100	12-Oct-21	07-Mar-22	143
CSGP1060	Install Median Barrier	20	20	08-Mar-22	04-Apr-22	143
CSGP1080	Install Base Stone	15	15	05-Apr-22	26-Apr-22	143
CSGP1090	Install Underdrain	5	5	27-Apr-22	03-May-22	143
CSGP1100	Install Asphalt to Intermediate	10	10	04-May-22	17-May-22	143
CSGP1110	Install Surface Asphalt	10	10	18-May-22	01-Jun-22	143
CSGP1120	Install Guardrail	5	5	02-Jun-22	08-Jun-22	173
CSGP1130	Pavement Markings	5	5	09-Jun-22	15-Jun-22	173
CSGP1140	Signs	10	10	16-Jun-22	29-Jun-22	173
CSGP1150	Remove MOT	5	5	30-Jun-22	07-Jul-22	173
South of Route 3 - Noise Barrier C (Phase S1)		368	368	25-Oct-21	27-Oct-22	172
CSS1000	Install MOT	10	10	25-Oct-21	05-Nov-21	156
CSS1010	Install E&S Controls	30	30	08-Nov-21	21-Dec-21	156
CSS1020	Clear & Grub	30	30	08-Nov-21	21-Dec-21	156
CSS1030	Mass Grading	60	60	22-Dec-21	16-May-22	116
CSS1040	Install Drainage	40	40	17-May-22	13-Jul-22	116
CSS1050	Grade/Place Fill for Noise Barrier C	30	30	14-Jul-22	24-Aug-22	116
CSS1060	Install Noise Barrier C Foundation & Posts	20	20	25-Aug-22	22-Sep-22	116
CSS1070	Set Noise Barrier C Panels	15	15	23-Sep-22	13-Oct-22	116
CSS1080	Backfill/Grade Noise Barrier C	5	5	14-Oct-22	20-Oct-22	116
CSS1140	Remove MOT	5	5	21-Oct-22	27-Oct-22	116
Route 3 CD Lanes (Phase S1)		993	993	30-Oct-20	19-Jul-23	273
Route 3 to Cowan Blvd. (Phase S1)		421	421	25-Oct-21	19-Dec-22	119
CSCD1000	Install MOT	10	10	25-Oct-21	05-Nov-21	60
CSCD1010	Install E&S Controls	45	45	08-Nov-21	14-Jan-22	60
CSCD1020	Clear & Grub	40	40	15-Nov-21	14-Jan-22	60
CSCD1030	Mass Grading	60	60	01-Mar-22	23-May-22	29
CSCD1040	Install Drainage	40	40	24-May-22	20-Jul-22	29
CSCD1360	ITS Installation	20	20	20-Jul-22	09-Aug-22	78
CSCD1060	Fine Grade Roadway	20	20	21-Jul-22	17-Aug-22	29



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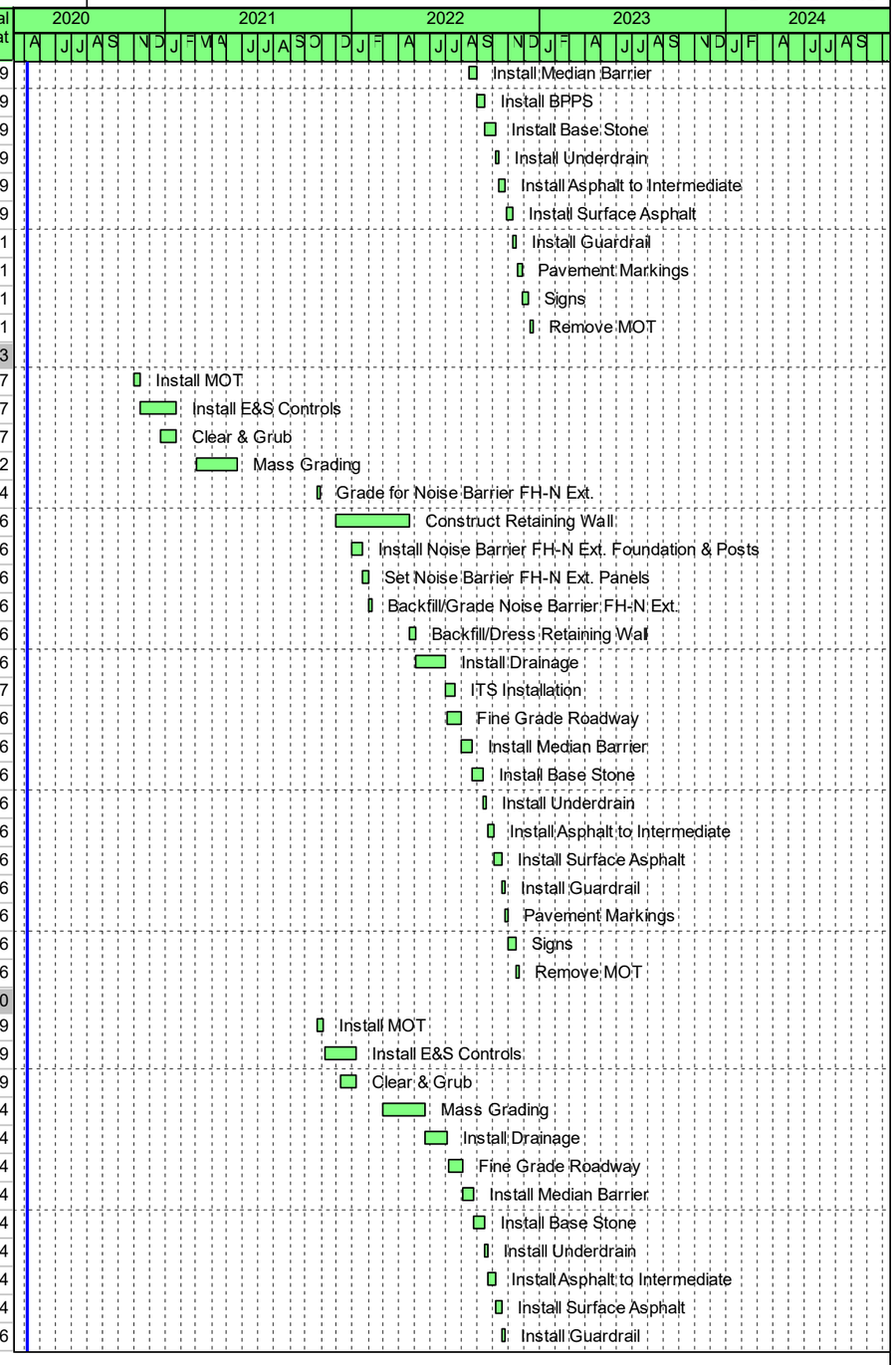
CSCD1190	Install Median Barrier	10	10	18-Aug-22	31-Aug-22	29
CSCD1350	Install BPPS	10	10	01-Sep-22	15-Sep-22	29
CSCD1070	Install Base Stone	15	15	16-Sep-22	06-Oct-22	29
CSCD1080	Install Underdrain	5	5	07-Oct-22	13-Oct-22	29
CSCD1090	Install Asphalt to Intermediate	10	10	14-Oct-22	27-Oct-22	29
CSCD1100	Install Surface Asphalt	10	10	28-Oct-22	10-Nov-22	29
CSCD1110	Install Guardrail	5	5	11-Nov-22	17-Nov-22	81
CSCD1120	Pavement Markings	5	5	18-Nov-22	28-Nov-22	81
CSCD1130	Signs	10	10	29-Nov-22	12-Dec-22	81
CSCD1140	Remove MOT	5	5	13-Dec-22	19-Dec-22	81
Cowan Blvd to Fall Hill (Phase S1)		754	754	30-Oct-20	22-Nov-22	113
CSCD1700	Install MOT	10	10	30-Oct-20	12-Nov-20	237
CSCD1710	Install E&S Controls	45	45	13-Nov-20	21-Jan-21	237
CSCD1720	Clear & Grub	20	20	22-Dec-20	21-Jan-21	237
CSCD1730	Mass Grading	60	60	01-Mar-21	21-May-21	212
CSCD1150	Grade for Noise Barrier FH-N Ext.	5	5	25-Oct-21	29-Oct-21	134
CSCD1750	Construct Retaining Wall	100	100	29-Nov-21	21-Apr-22	46
CSCD1160	Install Noise Barrier FH-N Ext. Foundation & Posts	15	15	29-Dec-21	19-Jan-22	96
CSCD1170	Set Noise Barrier FH-N Ext. Panels	10	10	20-Jan-22	02-Feb-22	96
CSCD1180	Backfill/Grade Noise Barrier FH-N Ext.	5	5	03-Feb-22	09-Feb-22	96
CSCD1780	Backfill/Dress Retaining Wall	10	10	22-Apr-22	05-May-22	46
CSCD1740	Install Drainage	40	40	06-May-22	01-Jul-22	46
CSCD1760	ITS Installation	20	20	01-Jul-22	21-Jul-22	97
CSCD1790	Fine Grade Roadway	20	20	05-Jul-22	01-Aug-22	46
CSCD1800	Install Median Barrier	15	15	02-Aug-22	22-Aug-22	46
CSCD1810	Install Base Stone	15	15	23-Aug-22	13-Sep-22	46
CSCD1820	Install Underdrain	5	5	14-Sep-22	20-Sep-22	46
CSCD1830	Install Asphalt to Intermediate	10	10	21-Sep-22	04-Oct-22	46
CSCD1840	Install Surface Asphalt	10	10	05-Oct-22	18-Oct-22	46
CSCD1850	Install Guardrail	5	5	19-Oct-22	25-Oct-22	76
CSCD1860	Pavement Markings	5	5	26-Oct-22	01-Nov-22	76
CSCD1870	Signs	10	10	02-Nov-22	15-Nov-22	76
CSCD1880	Remove MOT	5	5	16-Nov-22	22-Nov-22	76
Fall Hill to Slip Ramp (Sta. 5515) (Phase S1)		400	400	25-Oct-21	28-Nov-22	140
CSCD1200	Install MOT	10	10	25-Oct-21	05-Nov-21	79
CSCD1210	Install E&S Controls	40	40	08-Nov-21	07-Jan-22	79
CSCD1220	Clear & Grub	20	20	08-Dec-21	07-Jan-22	79
CSCD1230	Mass Grading	60	60	01-Mar-22	23-May-22	44
CSCD1240	Install Drainage	30	30	24-May-22	06-Jul-22	44
CSCD1250	Fine Grade Roadway	20	20	07-Jul-22	03-Aug-22	44
CSCD1340	Install Median Barrier	15	15	04-Aug-22	24-Aug-22	44
CSCD1260	Install Base Stone	15	15	25-Aug-22	15-Sep-22	44
CSCD1270	Install Underdrain	5	5	16-Sep-22	22-Sep-22	44
CSCD1280	Install Asphalt to Intermediate	10	10	23-Sep-22	06-Oct-22	44
CSCD1290	Install Surface Asphalt	10	10	07-Oct-22	20-Oct-22	44
CSCD1300	Install Guardrail	5	5	21-Oct-22	27-Oct-22	96



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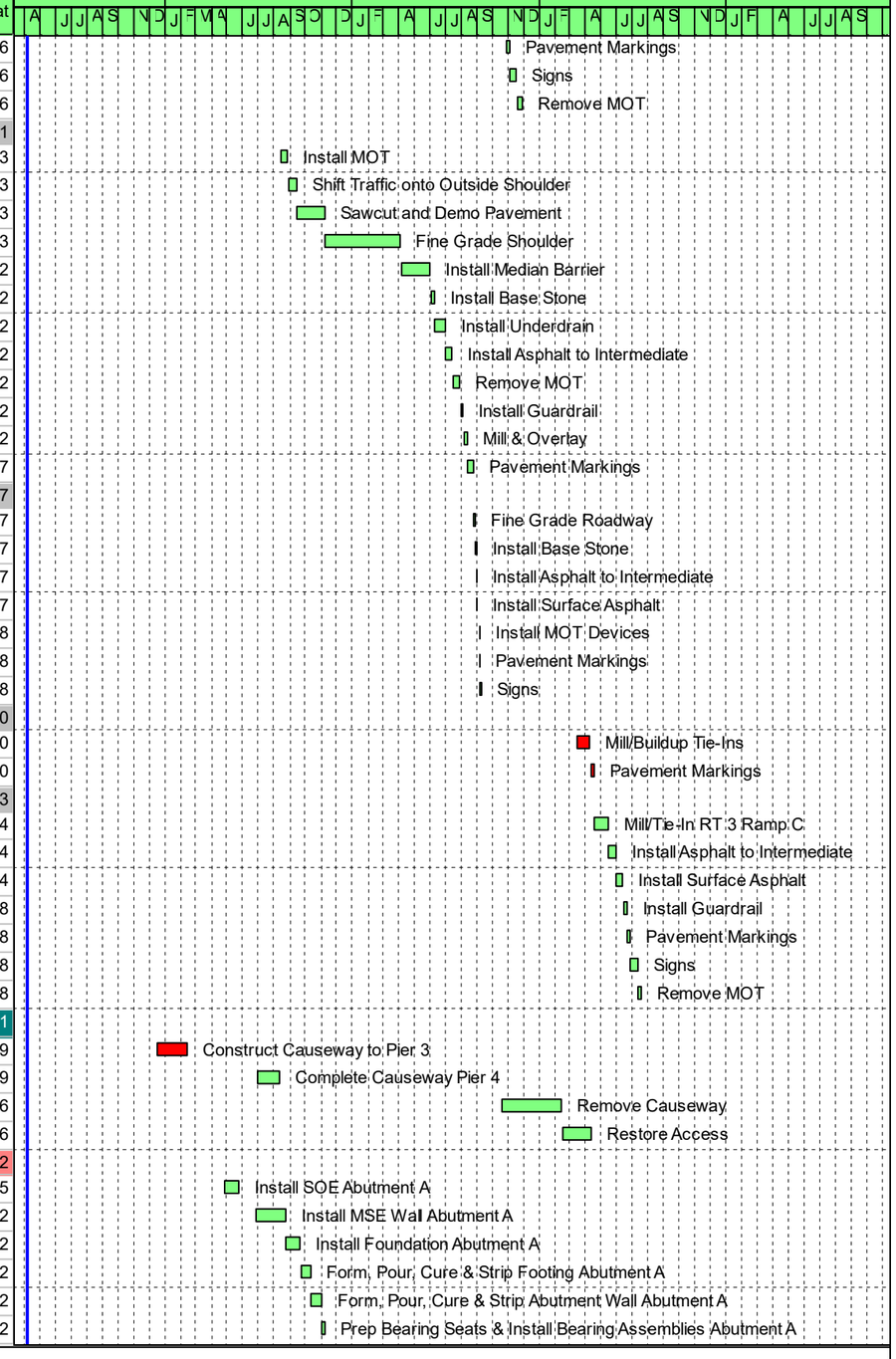
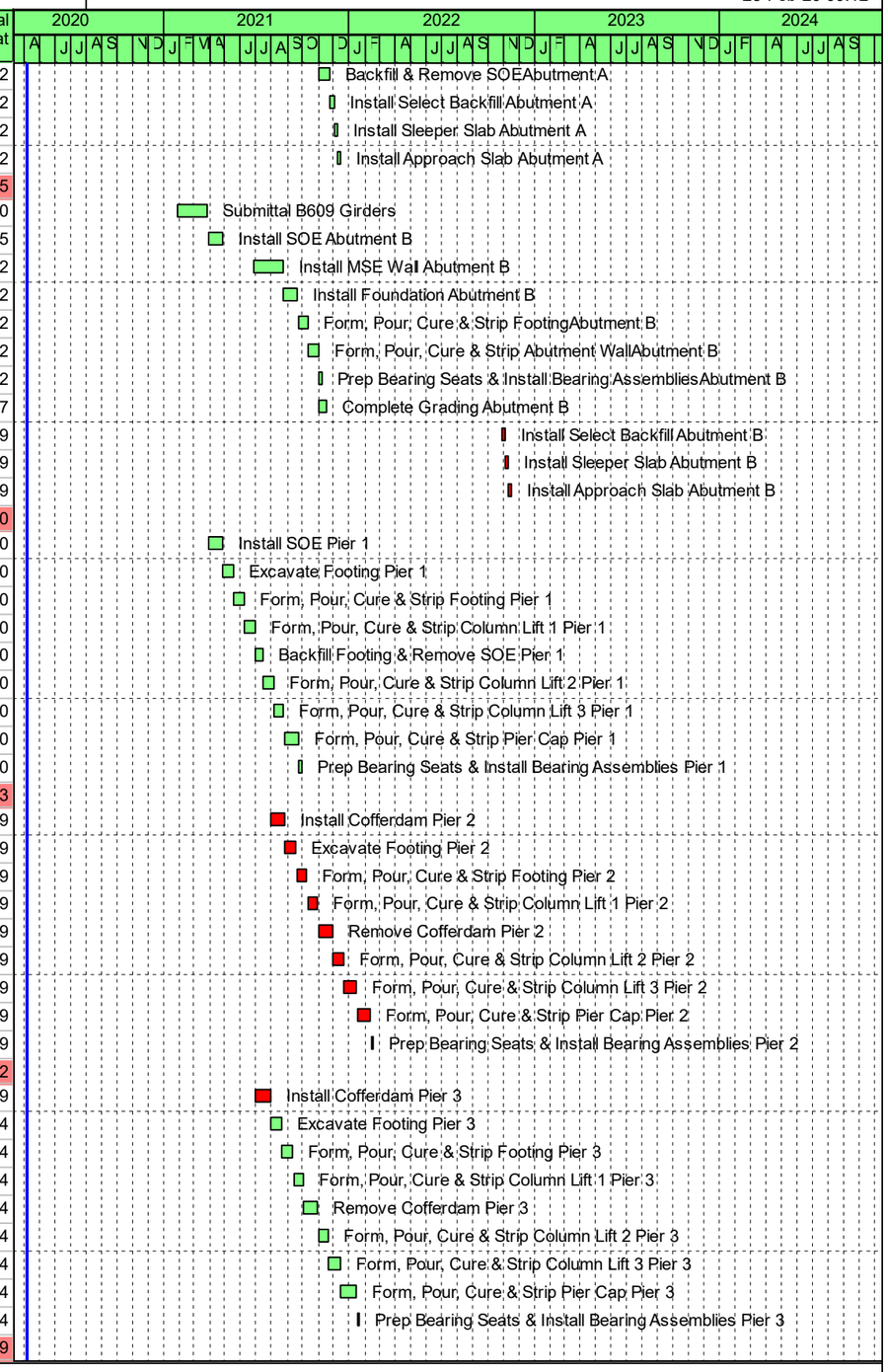
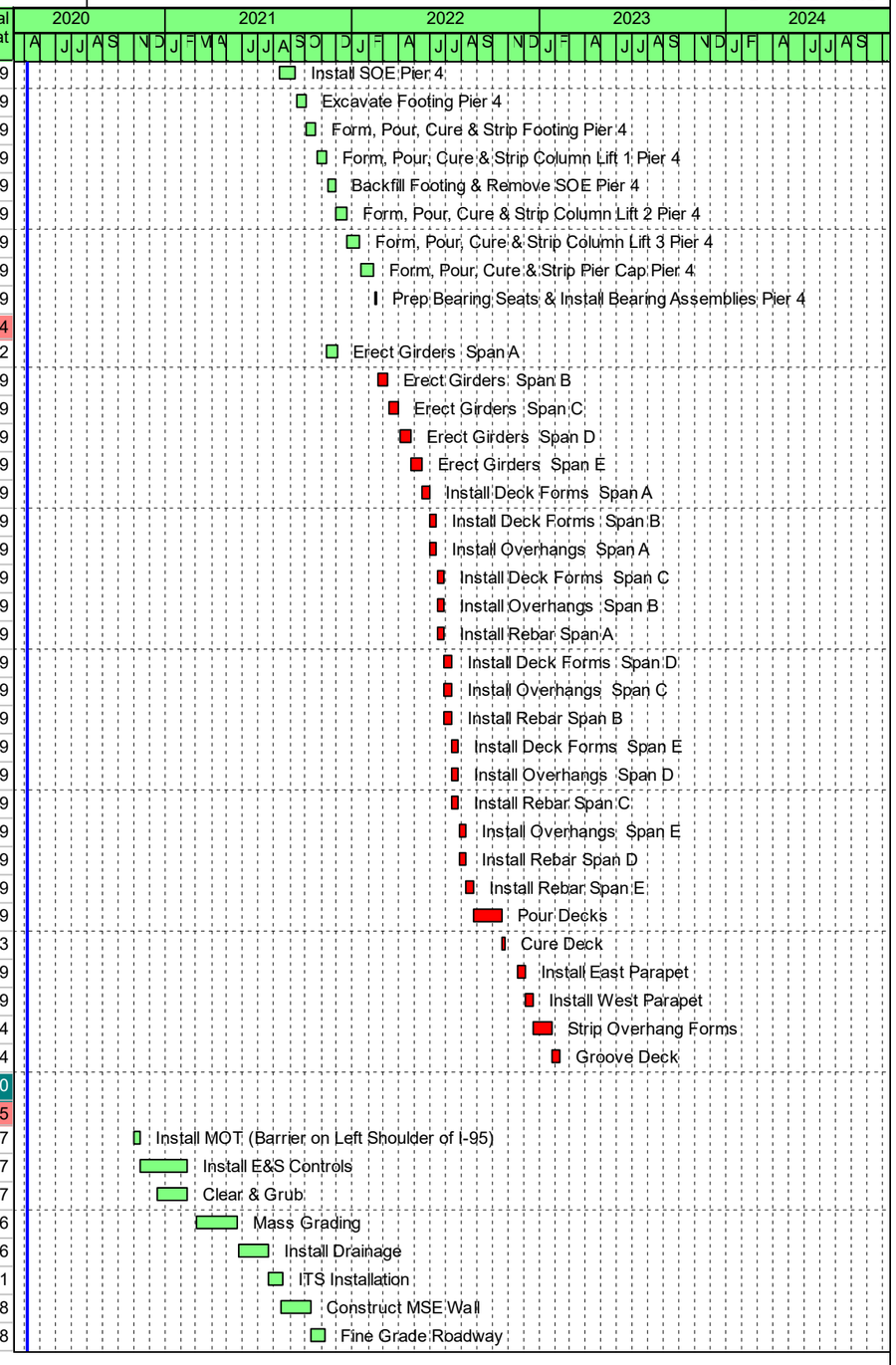
CSCD1310	Pavement Markings	5	5	28-Oct-22	03-Nov-22	96
CSCD1320	Signs	10	10	04-Nov-22	17-Nov-22	96
CSCD1330	Remove MOT	5	5	18-Nov-22	28-Nov-22	96
RT 3 Ramp C Tie-In and Slip Ramp to River (Phase S2)		376	376	16-Aug-21	26-Aug-22	201
CSCD1500	Install MOT	10	10	16-Aug-21	27-Aug-21	133
CSCD1510	Shift Traffic onto Outside Shoulder	10	10	30-Aug-21	13-Sep-21	133
CSCD1520	Sawcut and Demo Pavement	40	40	14-Sep-21	08-Nov-21	133
CSCD1530	Fine Grade Shoulder	60	60	09-Nov-21	05-Apr-22	93
CSCD1540	Install Median Barrier	40	40	06-Apr-22	02-Jun-22	92
CSCD1550	Install Base Stone	5	5	03-Jun-22	09-Jun-22	92
CSCD1560	Install Underdrain	15	15	10-Jun-22	30-Jun-22	92
CSCD1570	Install Asphalt to Intermediate	10	10	01-Jul-22	15-Jul-22	92
CSCD1640	Remove MOT	10	10	18-Jul-22	29-Jul-22	92
CSCD1650	Install Guardrail	5	5	01-Aug-22	05-Aug-22	92
CSCD1660	Mill & Overlay	5	5	08-Aug-22	12-Aug-22	92
CSCD1670	Pavement Markings	10	10	15-Aug-22	26-Aug-22	137
Temporary GP to CD Crossover (Phase S2)		16	16	25-Aug-22	09-Sep-22	187
CSGP1310	Fine Grade Roadway	3	3	25-Aug-22	29-Aug-22	77
CSGP1230	Install Base Stone	2	2	30-Aug-22	31-Aug-22	77
CSGP1250	Install Asphalt to Intermediate	1	1	01-Sep-22	01-Sep-22	77
CSGP1260	Install Surface Asphalt	1	1	02-Sep-22	02-Sep-22	77
CSGP1270	Install MOT Devices	1	1	06-Sep-22	06-Sep-22	128
CSGP1280	Pavement Markings	1	1	07-Sep-22	07-Sep-22	128
CSGP1290	Signs	2	2	08-Sep-22	09-Sep-22	128
Slip Ramp (Sta. 5515 to 5522) (Phase S3)		33	33	16-Mar-23	17-Apr-23	0
SCD1400	Mill/Buildup Tie-Ins	18	18	16-Mar-23	10-Apr-23	0
SCD1410	Pavement Markings	5	5	11-Apr-23	17-Apr-23	0
RT 3 Ramp C Tie-In and Removal of Temporary GP to CD Crossover (Phase S4)		93	93	18-Apr-23	19-Jul-23	273
SCD1420	Mill/Tie-In RT 3 Ramp C	20	20	18-Apr-23	15-May-23	134
CSGP1320	Install Asphalt to Intermediate	10	10	16-May-23	30-May-23	134
CSGP1330	Install Surface Asphalt	10	10	31-May-23	13-Jun-23	134
CSGP1340	Install Guardrail	5	5	14-Jun-23	20-Jun-23	188
CSGP1350	Pavement Markings	5	5	21-Jun-23	27-Jun-23	188
CSGP1360	Signs	10	10	28-Jun-23	12-Jul-23	188
CSGP1370	Remove MOT	5	5	13-Jul-23	19-Jul-23	188
B609 Rappahannock River Bridge (Geographical Area 2)		848	848	16-Dec-20	12-Apr-23	371
CR1050	Construct Causeway to Pier 3	40	40	16-Dec-20	12-Feb-21	9
CR1030	Complete Causeway Pier 4	30	30	01-Jul-21	12-Aug-21	39
CR1820	Remove Causeway	78	78	21-Oct-22	14-Feb-23	156
CR1850	Restore Access	40	40	15-Feb-23	12-Apr-23	256
Abutment A		163	163	27-Apr-21	16-Dec-21	242
CR1730	Install SOE Abutment A	20	20	27-Apr-21	24-May-21	85
CR1540	Install MSE Wall Abutment A	40	40	28-Jun-21	23-Aug-21	62
CR1520	Install Foundation Abutment A	20	20	24-Aug-21	21-Sep-21	62
CR1350	Form, Pour, Cure & Strip Footing Abutment A	15	15	22-Sep-21	12-Oct-21	62
CR1170	Form, Pour, Cure & Strip Abutment Wall Abutment A	15	15	13-Oct-21	02-Nov-21	62
CR1800	Prep Bearing Seats & Install Bearing Assemblies Abutment A	5	5	03-Nov-21	09-Nov-21	62



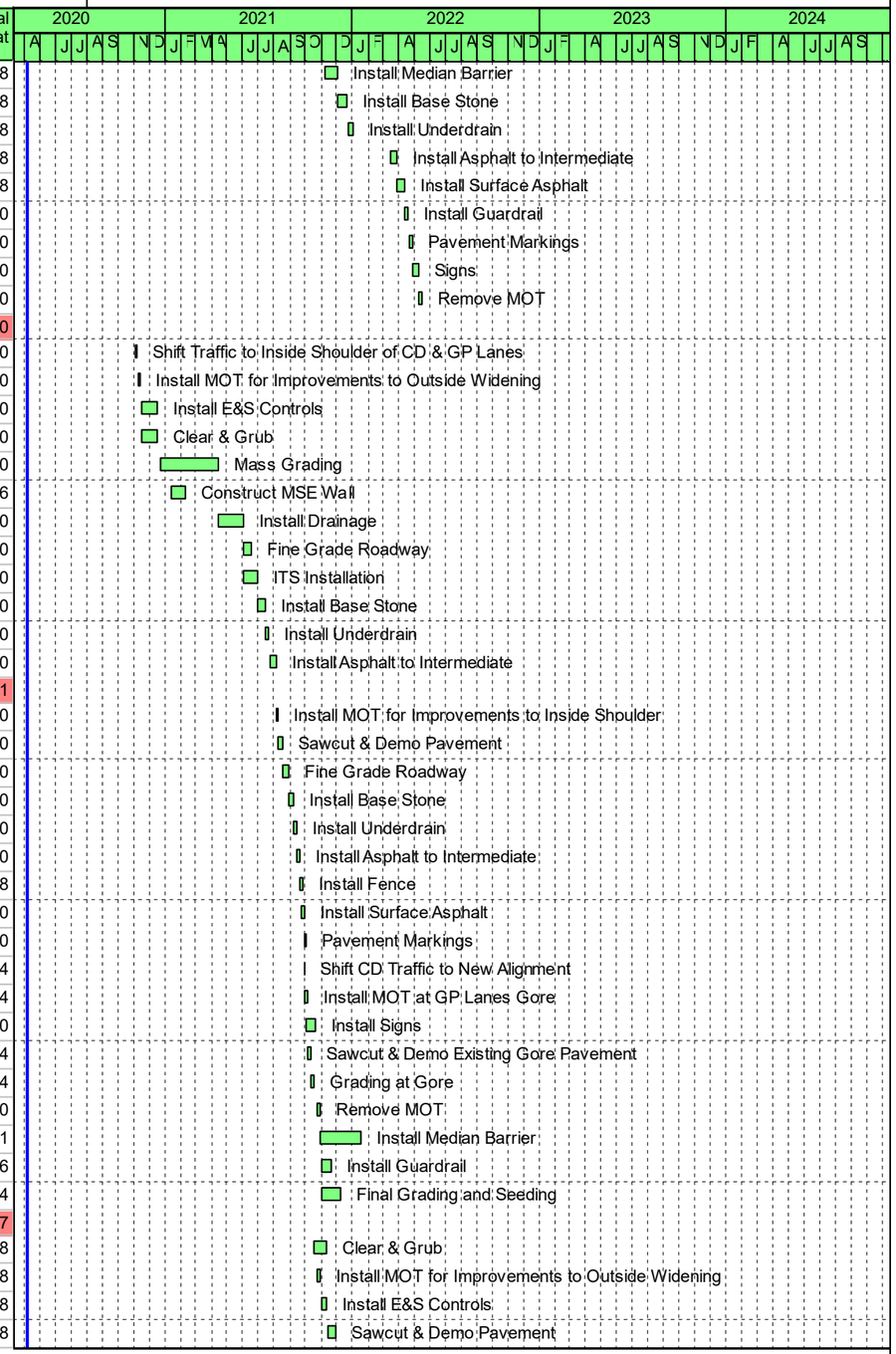
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CR1000	Backfill & Remove SOEAbutment A	15	15	03-Nov-21	23-Nov-21	242
CR1660	Install Select Backfill Abutment A	5	5	24-Nov-21	02-Dec-21	242
CR1680	Install Sleeper Slab Abutment A	5	5	03-Dec-21	09-Dec-21	242
CR1420	Install Approach Slab Abutment A	5	5	10-Dec-21	16-Dec-21	242
Abutment B		660	660	27-Jan-21	17-Nov-22	15
CG1280	Submittal B609 Girders	60	60	27-Jan-21	27-Mar-21	200
CR1700	Install SOE Abutment B	20	20	29-Mar-21	26-Apr-21	85
CR1550	Install MSE Wal Abutment B	40	40	28-Jun-21	23-Aug-21	122
CR1530	Install Foundation Abutment B	20	20	24-Aug-21	21-Sep-21	122
CR1360	Form, Pour, Cure & Strip FootingAbutment B	15	15	22-Sep-21	12-Oct-21	122
CR1180	Form, Pour, Cure & Strip Abutment WallAbutment B	15	15	13-Oct-21	02-Nov-21	122
CR1810	Prep Bearing Seats & Install Bearing AssembliesAbutment B	5	5	03-Nov-21	09-Nov-21	122
CR1040	Complete Grading Abutment B	10	10	03-Nov-21	16-Nov-21	207
CR1670	Install Select Backfill Abutment B	5	5	28-Oct-22	03-Nov-22	9
CR1690	Install Sleeper Slab Abutment B	5	5	04-Nov-22	10-Nov-22	9
CR1430	Install Approach Slab Abutment B	5	5	11-Nov-22	17-Nov-22	9
Pier 1		130	130	29-Mar-21	30-Sep-21	90
CR1710	Install SOE Pier 1	20	20	29-Mar-21	26-Apr-21	90
CR1130	Excavate Footing Pier 1	15	15	27-Apr-21	17-May-21	90
CR1310	Form, Pour, Cure & Strip Footing Pier 1	15	15	18-May-21	08-Jun-21	90
CR1190	Form, Pour, Cure & Strip Column Lift 1 Pier 1	15	15	09-Jun-21	29-Jun-21	90
CR1010	Backfill Footing & Remove SOE Pier 1	10	10	30-Jun-21	14-Jul-21	90
CR1230	Form, Pour, Cure & Strip Column Lift 2 Pier 1	15	15	15-Jul-21	04-Aug-21	90
CR1270	Form, Pour, Cure & Strip Column Lift 3 Pier 1	15	15	05-Aug-21	25-Aug-21	90
CR1370	Form, Pour, Cure & Strip Pier Cap Pier 1	20	20	26-Aug-21	23-Sep-21	90
CR1760	Prep Bearing Seats & Install Bearing Assemblies Pier 1	5	5	24-Sep-21	30-Sep-21	90
Pier 2		204	204	30-Jul-21	18-Feb-22	13
CR1440	Install Cofferdam Pier 2	20	20	30-Jul-21	26-Aug-21	9
CR1140	Excavate Footing Pier 2	15	15	27-Aug-21	17-Sep-21	9
CR1320	Form, Pour, Cure & Strip Footing Pier 2	15	15	20-Sep-21	08-Oct-21	9
CR1200	Form, Pour, Cure & Strip Column Lift 1 Pier 2	15	15	11-Oct-21	29-Oct-21	9
CR1830	Remove Cofferdam Pier 2	20	20	01-Nov-21	30-Nov-21	9
CR1240	Form, Pour, Cure & Strip Column Lift 2 Pier 2	15	15	01-Dec-21	21-Dec-21	9
CR1280	Form, Pour, Cure & Strip Column Lift 3 Pier 2	15	15	22-Dec-21	14-Jan-22	9
CR1380	Form, Pour, Cure & Strip Pier Cap Pier 2	20	20	17-Jan-22	11-Feb-22	9
CR1770	Prep Bearing Seats & Install Bearing Assemblies Pier 2	5	5	14-Feb-22	18-Feb-22	9
Pier 3		205	205	01-Jul-21	21-Jan-22	62
CR1450	Install Cofferdam Pier 3	20	20	01-Jul-21	29-Jul-21	9
CR1150	Excavate Footing Pier 3	15	15	30-Jul-21	19-Aug-21	44
CR1330	Form, Pour, Cure & Strip Footing Pier 3	15	15	20-Aug-21	10-Sep-21	44
CR1210	Form, Pour, Cure & Strip Column Lift 1 Pier 3	15	15	13-Sep-21	01-Oct-21	44
CR1840	Remove Cofferdam Pier 3	20	20	04-Oct-21	29-Oct-21	44
CR1250	Form, Pour, Cure & Strip Column Lift 2 Pier 3	15	15	01-Nov-21	19-Nov-21	44
CR1290	Form, Pour, Cure & Strip Column Lift 3 Pier 3	15	15	22-Nov-21	14-Dec-21	44
CR1390	Form, Pour, Cure & Strip Pier Cap Pier 3	20	20	15-Dec-21	14-Jan-22	44
CR1780	Prep Bearing Seats & Install Bearing Assemblies Pier 3	5	5	17-Jan-22	21-Jan-22	44
Pier 4		130	130	13-Aug-21	18-Feb-22	39



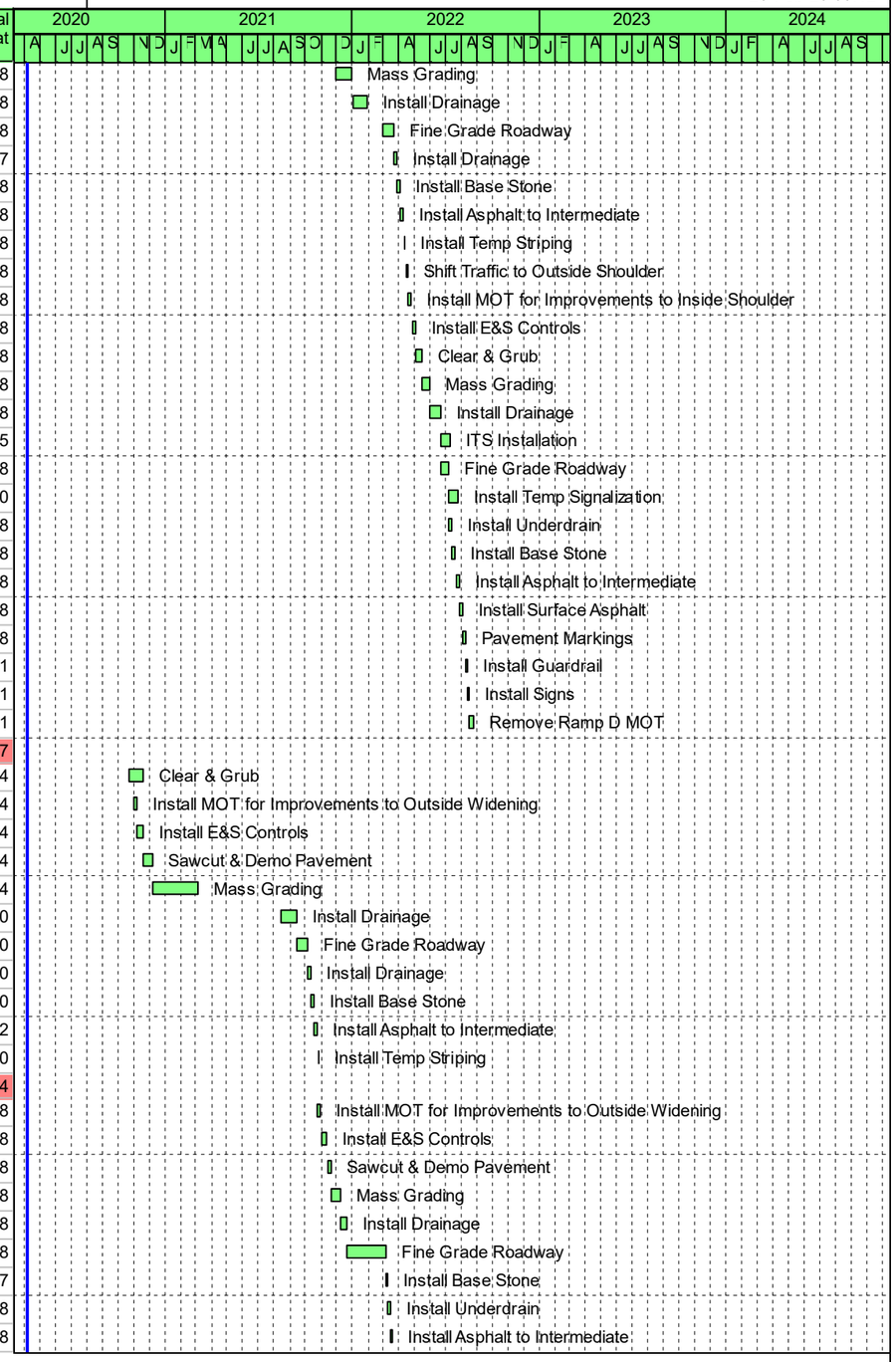
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CR1720	Install SOE Pier 4	20	20	13-Aug-21	10-Sep-21	39
CR1160	Excavate Footing Pier 4	15	15	13-Sep-21	01-Oct-21	39
CR1340	Form, Pour, Cure & Strip Footing Pier 4	15	15	04-Oct-21	22-Oct-21	39
CR1220	Form, Pour, Cure & Strip Column Lift 1 Pier 4	15	15	25-Oct-21	12-Nov-21	39
CR1020	Backfill Footing & Remove SOE Pier 4	10	10	15-Nov-21	30-Nov-21	39
CR1260	Form, Pour, Cure & Strip Column Lift 2 Pier 4	15	15	01-Dec-21	21-Dec-21	39
CR1300	Form, Pour, Cure & Strip Column Lift 3 Pier 4	15	15	22-Dec-21	14-Jan-22	39
CR1400	Form, Pour, Cure & Strip Pier Cap Pier 4	20	20	17-Jan-22	11-Feb-22	39
CR1790	Prep Bearing Seats & Install Bearing Assemblies Pier 4	5	5	14-Feb-22	18-Feb-22	39
Superstructure		457	457	10-Nov-21	09-Feb-23	34
CR1080	Erect Girders Span A	15	15	10-Nov-21	02-Dec-21	62
CR1090	Erect Girders Span B	15	15	21-Feb-22	11-Mar-22	9
CR1100	Erect Girders Span C	15	15	14-Mar-22	01-Apr-22	9
CR1110	Erect Girders Span D	15	15	04-Apr-22	25-Apr-22	9
CR1120	Erect Girders Span E	15	15	26-Apr-22	16-May-22	9
CR1460	Install Deck Forms Span A	10	10	17-May-22	31-May-22	9
CR1470	Install Deck Forms Span B	10	10	01-Jun-22	14-Jun-22	9
CR1560	Install Overhangs Span A	10	10	01-Jun-22	14-Jun-22	9
CR1480	Install Deck Forms Span C	10	10	15-Jun-22	28-Jun-22	9
CR1570	Install Overhangs Span B	10	10	15-Jun-22	28-Jun-22	9
CR1610	Install Rebar Span A	10	10	15-Jun-22	28-Jun-22	9
CR1490	Install Deck Forms Span D	10	10	29-Jun-22	13-Jul-22	9
CR1580	Install Overhangs Span C	10	10	29-Jun-22	13-Jul-22	9
CR1620	Install Rebar Span B	10	10	29-Jun-22	13-Jul-22	9
CR1500	Install Deck Forms Span E	10	10	14-Jul-22	27-Jul-22	9
CR1590	Install Overhangs Span D	10	10	14-Jul-22	27-Jul-22	9
CR1630	Install Rebar Span C	10	10	14-Jul-22	27-Jul-22	9
CR1600	Install Overhangs Span E	10	10	28-Jul-22	10-Aug-22	9
CR1640	Install Rebar Span D	10	10	28-Jul-22	10-Aug-22	9
CR1650	Install Rebar Span E	10	10	11-Aug-22	24-Aug-22	9
CR1750	Pour Decks	40	40	25-Aug-22	20-Oct-22	9
CR1070	Cure Deck	7	7	21-Oct-22	27-Oct-22	13
CR1510	Install East Parapet	10	10	18-Nov-22	05-Dec-22	9
CR1740	Install West Parapet	10	10	06-Dec-22	19-Dec-22	9
CR1860	Strip Overhang Forms	25	25	20-Dec-22	26-Jan-23	24
CR1410	Groove Deck	10	10	27-Jan-23	09-Feb-23	24
Improvements North of Rappahannock River Bridge (Geographical Area 3)		1273	1273	23-Oct-20	17-Apr-24	30
I-95 NB GP (Phase N1)		566	566	30-Oct-20	18-May-22	335
CNGP1000	Install MOT (Barrier on Left Shoulder of I-95)	10	10	30-Oct-20	12-Nov-20	297
CNGP1010	Install E&S Controls	60	60	13-Nov-20	11-Feb-21	297
CNGP1020	Clear & Grub	40	40	15-Dec-20	11-Feb-21	297
CNGP1030	Mass Grading	60	60	01-Mar-21	21-May-21	246
CNGP1040	Install Drainage	40	40	24-May-21	20-Jul-21	286
CNGP1200	ITS Installation	20	20	21-Jul-21	17-Aug-21	261
CNGP1190	Construct MSE Wall	40	40	16-Aug-21	11-Oct-21	228
CNGP1090	Fine Grade Roadway	20	20	12-Oct-21	08-Nov-21	228



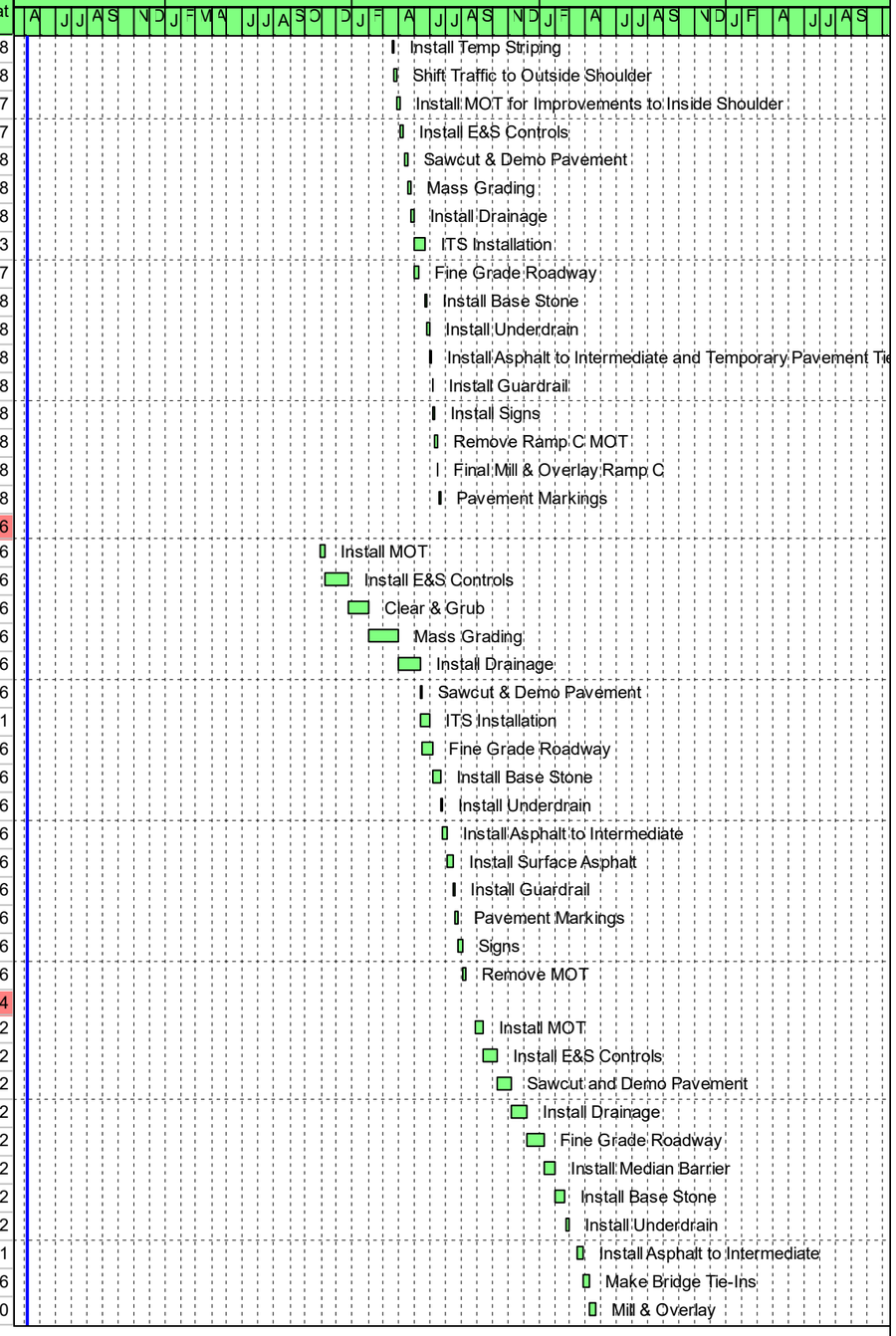
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CNGP1100	Install Median Barrier	15	15	09-Nov-21	01-Dec-21	228
CNGP1110	Install Base Stone	15	15	02-Dec-21	22-Dec-21	228
CNGP1120	Install Underdrain	5	5	23-Dec-21	03-Jan-22	228
CNGP1130	Install Asphalt to Intermediate	10	10	16-Mar-22	29-Mar-22	178
CNGP1140	Install Surface Asphalt	10	10	30-Mar-22	12-Apr-22	178
CNGP1150	Install Guardrail	5	5	13-Apr-22	20-Apr-22	230
CNGP1160	Pavement Markings	5	5	21-Apr-22	27-Apr-22	230
CNGP1170	Signs	10	10	28-Apr-22	11-May-22	230
CNGP1180	Remove MOT	5	5	12-May-22	18-May-22	230
CD Lanes North of Ramp C2 Overlap Area (Phase N1)		277	277	02-Nov-20	05-Aug-21	0
CNCD2110	Shift Traffic to Inside Shoulder of CD & GP Lanes	5	5	02-Nov-20	06-Nov-20	0
CNCD2120	Install MOT for Improvements to Outside Widening	5	5	09-Nov-20	13-Nov-20	0
CNCD2130	Install E&S Controls	20	20	16-Nov-20	15-Dec-20	0
CNCD2140	Clear & Grub	20	20	16-Nov-20	15-Dec-20	0
CNCD2150	Mass Grading	80	80	23-Dec-20	13-Apr-21	0
CNCD2180	Construct MSE Wall	30	30	12-Jan-21	10-Feb-21	126
CNCD2160	Install Drainage	35	35	14-Apr-21	02-Jun-21	0
CNCD2170	Fine Grade Roadway	10	10	03-Jun-21	16-Jun-21	10
CNCD2330	ITS Installation	20	20	03-Jun-21	30-Jun-21	0
CNCD2190	Install Base Stone	10	10	01-Jul-21	15-Jul-21	0
CNCD2200	Install Underdrain	5	5	16-Jul-21	22-Jul-21	0
CNCD2210	Install Asphalt to Intermediate	10	10	23-Jul-21	05-Aug-21	0
CD Lanes North of Ramp C2 Overlap Area (Phase N2)		165	165	06-Aug-21	17-Jan-22	851
CNCD2000	Install MOT for Improvements to Inside Shoulder	2	2	06-Aug-21	09-Aug-21	0
CNCD2030	Sawcut & Demo Pavement	5	5	10-Aug-21	16-Aug-21	0
CNCD2060	Fine Grade Roadway	10	10	17-Aug-21	30-Aug-21	0
CNCD2070	Install Base Stone	5	5	31-Aug-21	07-Sep-21	0
CNCD2080	Install Underdrain	5	5	08-Sep-21	14-Sep-21	0
CNCD2090	Install Asphalt to Intermediate	5	5	15-Sep-21	21-Sep-21	0
CNCD2280	Install Fence	5	5	21-Sep-21	26-Sep-21	28
CNCD2220	Install Surface Asphalt	5	5	22-Sep-21	28-Sep-21	0
CNCD2230	Pavement Markings	3	3	29-Sep-21	01-Oct-21	0
CNCD2260	Shift CD Traffic to New Alignment	2	2	29-Sep-21	30-Sep-21	4
CNCD2290	Install MOT at GP Lanes Gore	2	2	01-Oct-21	04-Oct-21	4
CNCD2250	Install Signs	15	15	04-Oct-21	22-Oct-21	0
CNCD2300	Sawcut & Demo Existing Gore Pavement	5	5	05-Oct-21	11-Oct-21	4
CNCD2310	Grading at Gore	5	5	12-Oct-21	18-Oct-21	4
CNCD2320	Remove MOT	5	5	25-Oct-21	29-Oct-21	0
CNCD2270	Install Median Barrier	80	80	29-Oct-21	17-Jan-22	851
CNCD2240	Install Guardrail	15	15	01-Nov-21	19-Nov-21	626
CNCD2350	Final Grading and Seeding	25	25	01-Nov-21	07-Dec-21	594
Route 17 Ramp D (Phase N2)		311	311	18-Oct-21	24-Aug-22	177
CND1020	Clear & Grub	20	20	18-Oct-21	12-Nov-21	78
CND1000	Install MOT for Improvements to Outside Widening	5	5	25-Oct-21	29-Oct-21	118
CND1010	Install E&S Controls	10	10	01-Nov-21	12-Nov-21	118
CND1030	Sawcut & Demo Pavement	10	10	15-Nov-21	30-Nov-21	118



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CND1040	Mass Grading	20	20	01-Dec-21	30-Dec-21	78
CND1050	Install Drainage	20	20	03-Jan-22	28-Jan-22	118
CND1060	Fine Grade Roadway	15	15	01-Mar-22	21-Mar-22	98
CND1070	Install Drainage	5	5	22-Mar-22	28-Mar-22	97
CND1080	Install Base Stone	5	5	29-Mar-22	04-Apr-22	98
CND1090	Install Asphalt to Intermediate	5	5	05-Apr-22	11-Apr-22	98
CND1100	Install Temp Striping	3	3	12-Apr-22	14-Apr-22	98
CND1110	Shift Traffic to Outside Shoulder	3	3	15-Apr-22	19-Apr-22	98
CND1120	Install MOT for Improvements to Inside Shoulder	5	5	20-Apr-22	26-Apr-22	98
CND1130	Install E&S Controls	5	5	27-Apr-22	03-May-22	98
CND1140	Clear & Grub	10	10	04-May-22	17-May-22	98
CND1160	Mass Grading	10	10	18-May-22	01-Jun-22	98
CND1170	Install Drainage	15	15	02-Jun-22	22-Jun-22	98
CND1150	ITS Installation	20	20	22-Jun-22	12-Jul-22	145
CND1180	Fine Grade Roadway	10	10	23-Jun-22	07-Jul-22	98
CND1270	Install Temp Signalization	20	20	07-Jul-22	27-Jul-22	200
CND1190	Install Underdrain	5	5	08-Jul-22	14-Jul-22	98
CND1200	Install Base Stone	5	5	15-Jul-22	21-Jul-22	98
CND1210	Install Asphalt to Intermediate	5	5	22-Jul-22	28-Jul-22	98
CND1260	Install Surface Asphalt	5	5	29-Jul-22	04-Aug-22	98
CND1220	Pavement Markings	3	3	05-Aug-22	09-Aug-22	98
CND1230	Install Guardrail	3	3	10-Aug-22	12-Aug-22	121
CND1240	Install Signs	3	3	15-Aug-22	17-Aug-22	121
CND1250	Remove Ramp D MOT	5	5	18-Aug-22	24-Aug-22	121
Route 17 Ramp B (Phase N2)		371	371	23-Oct-20	28-Oct-21	627
CNB1020	Clear & Grub	20	20	23-Oct-20	19-Nov-20	464
CNB1000	Install MOT for Improvements to Outside Widening	5	5	30-Oct-20	05-Nov-20	584
CNB1010	Install E&S Controls	10	10	06-Nov-20	19-Nov-20	584
CNB1030	Sawcut & Demo Pavement	10	10	20-Nov-20	07-Dec-20	584
CNB1040	Mass Grading	20	20	08-Dec-20	04-Mar-21	464
CNB1050	Install Drainage	20	20	16-Aug-21	13-Sep-21	430
CNB1060	Fine Grade Roadway	15	15	14-Sep-21	04-Oct-21	350
CNB1070	Install Drainage	5	5	05-Oct-21	11-Oct-21	430
CNB1080	Install Base Stone	5	5	12-Oct-21	18-Oct-21	350
CNB1090	Install Asphalt to Intermediate	5	5	19-Oct-21	25-Oct-21	322
CNB1100	Install Temp Striping	3	3	26-Oct-21	28-Oct-21	350
Route 17 Ramp C1 (Phase N2)		241	241	25-Oct-21	22-Jun-22	184
CNC1500	Install MOT for Improvements to Outside Widening	5	5	25-Oct-21	29-Oct-21	168
CNC1510	Install E&S Controls	10	10	01-Nov-21	12-Nov-21	168
CNC1530	Sawcut & Demo Pavement	5	5	15-Nov-21	19-Nov-21	168
CNC1540	Mass Grading	10	10	22-Nov-21	07-Dec-21	128
CNC1550	Install Drainage	10	10	08-Dec-21	21-Dec-21	168
CNC1560	Fine Grade Roadway	10	10	22-Dec-21	07-Mar-22	128
CNC1570	Install Base Stone	3	3	08-Mar-22	10-Mar-22	127
CNC1580	Install Underdrain	3	3	11-Mar-22	15-Mar-22	128
CNC1590	Install Asphalt to Intermediate	3	3	16-Mar-22	18-Mar-22	128

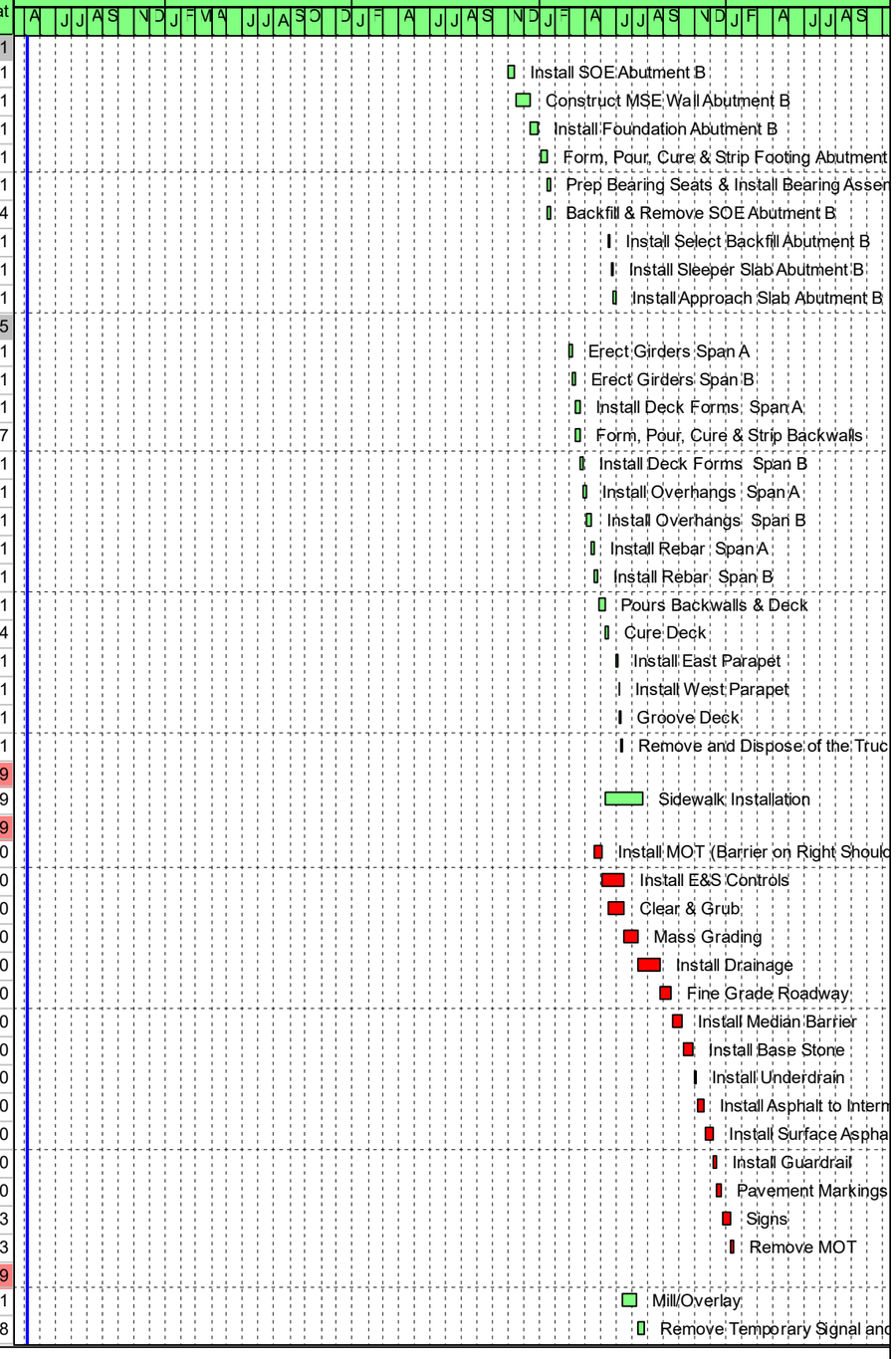


Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CNC1600	Install Temp Striping	3	3	21-Mar-22	23-Mar-22	128
CNC1610	Shift Traffic to Outside Shoulder	3	3	24-Mar-22	28-Mar-22	128
CNC1620	Install MOT for Improvements to Inside Shoulder	5	5	29-Mar-22	04-Apr-22	127
CNC1630	Install E&S Controls	5	5	05-Apr-22	11-Apr-22	127
CNC1640	Sawcut & Demo Pavement	5	5	12-Apr-22	18-Apr-22	128
CNC1650	Mass Grading	5	5	19-Apr-22	25-Apr-22	128
CNC1660	Install Drainage	5	5	26-Apr-22	02-May-22	128
CNC1760	ITS Installation	20	20	02-May-22	22-May-22	183
CNC1670	Fine Grade Roadway	5	5	03-May-22	09-May-22	137
CNC1680	Install Base Stone	3	3	23-May-22	25-May-22	128
CNC1690	Install Underdrain	3	3	26-May-22	31-May-22	128
CNC1700	Install Asphalt to Intermediate and Temporary Pavement Tie-In for Temp Signal at RT 17 and Ramp C/D	3	3	01-Jun-22	03-Jun-22	128
CNC1710	Install Guardrail	2	2	06-Jun-22	07-Jun-22	128
CNC1720	Install Signs	2	2	08-Jun-22	09-Jun-22	128
CNC1730	Remove Ramp C MOT	5	5	10-Jun-22	16-Jun-22	128
CNC1740	Final Mill & Overlay Ramp C	1	1	17-Jun-22	17-Jun-22	128
CNC1750	Pavement Markings	3	3	20-Jun-22	22-Jun-22	128
Centreport Auxiliary Lane (Option # 1) (Phase N2)		285	285	29-Oct-21	10-Aug-22	616
CNCAL1000	Install MOT	10	10	29-Oct-21	08-Nov-21	616
CNCAL1010	Install E&S Controls	45	45	08-Nov-21	23-Dec-21	616
CNCAL1020	Clear & Grub	40	40	23-Dec-21	01-Feb-22	616
CNCAL1030	Mass Grading	60	60	01-Feb-22	02-Apr-22	616
CNCAL1040	Install Drainage	40	40	02-Apr-22	12-May-22	616
CNCAL1140	Sawcut & Demo Pavement	5	5	12-May-22	17-May-22	616
CNCAL1150	ITS Installation	20	20	12-May-22	01-Jun-22	621
CNCAL1050	Fine Grade Roadway	20	20	17-May-22	06-Jun-22	616
CNCAL1060	Install Base Stone	15	15	06-Jun-22	21-Jun-22	616
CNCAL1070	Install Underdrain	5	5	21-Jun-22	26-Jun-22	616
CNCAL1080	Install Asphalt to Intermediate	10	10	26-Jun-22	06-Jul-22	616
CNCAL1090	Install Surface Asphalt	10	10	06-Jul-22	16-Jul-22	616
CNCAL1100	Install Guardrail	5	5	16-Jul-22	21-Jul-22	616
CNCAL1110	Pavement Markings	5	5	21-Jul-22	26-Jul-22	616
CNCAL1120	Signs	10	10	26-Jul-22	05-Aug-22	616
CNCAL1130	Remove MOT	5	5	05-Aug-22	10-Aug-22	616
CD Lanes - Rte 17 Interchange (Phase N3)		271	271	29-Aug-22	26-May-23	294
CNCD1160	Install MOT	10	10	29-Aug-22	12-Sep-22	182
CNCD1170	Install E&S Controls	20	20	13-Sep-22	10-Oct-22	182
CNCD1190	Sawcut and Demo Pavement	20	20	11-Oct-22	07-Nov-22	142
CNCD1200	Install Drainage	20	20	08-Nov-22	07-Dec-22	182
CNCD1210	Fine Grade Roadway	20	20	08-Dec-22	09-Jan-23	182
CNCD1220	Install Median Barrier	15	15	10-Jan-23	30-Jan-23	182
CNCD1230	Install Base Stone	15	15	31-Jan-23	20-Feb-23	182
CNCD1240	Install Underdrain	5	5	21-Feb-23	27-Feb-23	182
CNCD1250	Install Asphalt to Intermediate	10	10	16-Mar-23	29-Mar-23	171
CNCD1310	Make Bridge Tie-Ins	10	10	29-Mar-23	08-Apr-23	246
CNCD1260	Mill & Overlay	10	10	10-Apr-23	21-Apr-23	170

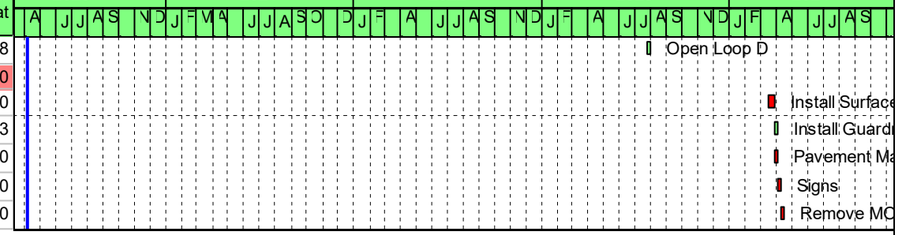


Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
CNCD1270	Install Guardrail	5	5	24-Apr-23	28-Apr-23	202
CNCD1280	Pavement Markings	5	5	01-May-23	05-May-23	202
CNCD1290	Signs	10	10	08-May-23	19-May-23	202
CNCD1300	Remove MOT	5	5	22-May-23	26-May-23	202
Route 17 Ramp B (Phase N3)		180	180	29-Oct-21	26-Apr-22	722
CNB1110	Shift Traffic to Outside Shoulder	3	3	29-Oct-21	02-Nov-21	350
CNB1120	Install MOT for Improvements to Inside Shoulder Ramp B and NB RT 17 Gore	5	5	03-Nov-21	09-Nov-21	430
CNB1130	Install E&S Controls	5	5	10-Nov-21	16-Nov-21	430
CNB1140	Sawcut & Demo Pavement	10	10	17-Nov-21	02-Dec-21	350
CNB1150	Mass Grading	10	10	03-Dec-21	16-Dec-21	350
CNB1160	Install Drainage	10	10	17-Dec-21	04-Jan-22	430
CNB1170	Fine Grade Roadway	10	10	01-Mar-22	14-Mar-22	352
CNB1190	Install Underdrain	5	5	15-Mar-22	21-Mar-22	391
CNB1200	Install Base Stone	5	5	22-Mar-22	28-Mar-22	352
CNB1210	Install Asphalt to Intermediate	5	5	29-Mar-22	04-Apr-22	338
CNB1240	Install Guardrail	3	3	05-Apr-22	07-Apr-22	498
CNB1250	Install Signs	3	3	08-Apr-22	12-Apr-22	498
CNB1260	Remove Ramp B and RT 17 MOT	5	5	13-Apr-22	20-Apr-22	498
CNB1270	Final Mill & Overlay Ramp B	1	1	21-Apr-22	21-Apr-22	388
CNB1230	Pavement Markings	3	3	22-Apr-22	26-Apr-22	388
Route 17 Loop C and D (Phase N3)		16	16	24-Aug-22	09-Sep-22	544
CNC1000	Install MOT to Perm Close Loop C and Temp Close Loop D	3	3	24-Aug-22	27-Aug-22	178
CNC1010	Install E&S Controls	3	3	27-Aug-22	30-Aug-22	544
CNC1020	Demo Pavement	5	5	30-Aug-22	04-Sep-22	544
CNC1030	Obscure Roadway	5	5	04-Sep-22	09-Sep-22	544
Bridge B608 I-95 NB CD Lanes over Route 17 (Option #2) (Phase N3)		288	288	29-Aug-22	12-Jun-23	340
CN1250	Demo Existing NB Bridge	35	35	29-Aug-22	17-Oct-22	121
Abutment A		154	154	18-Oct-22	30-May-23	121
CN2610	Install SOE Abutment A	10	10	18-Oct-22	31-Oct-22	121
CN1170	Construct MSE Wall Abutment A	20	20	01-Nov-22	30-Nov-22	156
CN2170	Install Foundation Abutment A	10	10	01-Dec-22	14-Dec-22	156
CN1540	Form, Pour, Cure & Strip Footing Abutment A	10	10	15-Dec-22	30-Dec-22	156
CN3000	Prep Bearing Seats & Install Bearing Assemblies Abutment A	5	5	03-Jan-23	09-Jan-23	156
CN1040	Backfill & Remove SOE Abutment A	5	5	03-Jan-23	09-Jan-23	209
CN2490	Install Select Backfill Abutment A	3	3	17-May-23	19-May-23	121
CN2550	Install Sleeper Slab Abutment A	3	3	22-May-23	24-May-23	121
CN1690	Install Approach Slab Abutment A	3	3	25-May-23	30-May-23	121
Pier		75	75	15-Nov-22	06-Mar-23	304
CN2670	Install SOE Pier	10	10	15-Nov-22	30-Nov-22	121
CN1360	Excavate Footing Pier	10	10	01-Dec-22	14-Dec-22	121
CN2230	Install Foundation Pier	10	10	15-Dec-22	30-Dec-22	121
CN1600	Form, Pour, Cure & Strip Footing Pier	10	10	03-Jan-23	16-Jan-23	121
CN1510	Form, Pour, Cure & Strip Column Pier	10	10	17-Jan-23	30-Jan-23	121
CN1070	Backfill Footing & Remove SOE Pier	5	5	31-Jan-23	06-Feb-23	121
CN1630	Form, Pour, Cure & Strip Pier Cap Pier	10	10	07-Feb-23	20-Feb-23	121
CN3060	Prep Bearing Seats & Install Bearing Assemblies Pier	5	5	21-Feb-23	27-Feb-23	121
CN1900	Install BPPS-1 Pier and at Existing NB CD Bridge	10	10	21-Feb-23	06-Mar-23	304

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
Abutment B		144	144	01-Nov-22	30-May-23	121
CN2640	Install SOE Abutment B	10	10	01-Nov-22	14-Nov-22	121
CN1200	Construct MSE Wall Abutment B	20	20	15-Nov-22	14-Dec-22	151
CN2200	Install Foundation Abutment B	10	10	15-Dec-22	30-Dec-22	151
CN1570	Form, Pour, Cure & Strip Footing Abutment B	10	10	03-Jan-23	16-Jan-23	151
CN3030	Prep Bearing Seats & Install Bearing Assemblies Abutment B	5	5	17-Jan-23	23-Jan-23	151
CN1050	Backfill & Remove SOE Abutment B	5	5	17-Jan-23	23-Jan-23	204
CN2520	Install Select Backfill Abutment B	3	3	17-May-23	19-May-23	121
CN2580	Install Sleeper Slab Abutment B	3	3	22-May-23	24-May-23	121
CN1720	Install Approach Slab Abutment B	3	3	25-May-23	30-May-23	121
Superstructure		105	105	28-Feb-23	12-Jun-23	175
CN1300	Erect Girders Span A	5	5	28-Feb-23	06-Mar-23	121
CN1330	Erect Girders Span B	5	5	07-Mar-23	13-Mar-23	121
CN1920	Install Deck Forms Span A	5	5	14-Mar-23	20-Mar-23	121
CN1480	Form, Pour, Cure & Strip Backwalls	5	5	14-Mar-23	20-Mar-23	137
CN1950	Install Deck Forms Span B	5	5	21-Mar-23	27-Mar-23	121
CN2370	Install Overhangs Span A	5	5	28-Mar-23	03-Apr-23	121
CN2400	Install Overhangs Span B	5	5	04-Apr-23	11-Apr-23	121
CN2430	Install Rebar Span A	5	5	12-Apr-23	18-Apr-23	121
CN2460	Install Rebar Span B	5	5	19-Apr-23	25-Apr-23	121
CN2960	Pours Backwalls & Deck	10	10	26-Apr-23	09-May-23	121
CN1230	Cure Deck	7	7	10-May-23	16-May-23	174
CN2140	Install East Parapet	3	3	31-May-23	02-Jun-23	121
CN2850	Install West Parapet	2	2	05-Jun-23	06-Jun-23	121
CN1660	Groove Deck	2	2	07-Jun-23	08-Jun-23	121
CN3140	Remove and Dispose of the Truck Overheight Detection System	2	2	09-Jun-23	12-Jun-23	121
Sidewalk Connection through I-95/Route 17 Interchange (Option #3) (N3)		75	75	09-May-23	23-Jul-23	269
C1190	Sidewalk Installation	75	75	09-May-23	23-Jul-23	269
CD Lanes to Ramp D and Temporary GP to Ramp D (N4)		273	273	19-Apr-23	16-Jan-24	59
CNCD1000	Install MOT (Barrier on Right Shoulder of I-95)	10	10	19-Apr-23	02-May-23	0
CNCD1010	Install E&S Controls	30	30	03-May-23	14-Jun-23	0
CNCD1020	Clear & Grub	20	20	17-May-23	14-Jun-23	0
CNCD1030	Mass Grading	20	20	15-Jun-23	13-Jul-23	0
CNCD1050	Install Drainage	30	30	14-Jul-23	24-Aug-23	0
CNCD1060	Fine Grade Roadway	15	15	25-Aug-23	15-Sep-23	0
CNCD1070	Install Median Barrier	15	15	18-Sep-23	06-Oct-23	0
CNCD1080	Install Base Stone	15	15	09-Oct-23	27-Oct-23	0
CNCD1090	Install Underdrain	5	5	30-Oct-23	03-Nov-23	0
CNCD1100	Install Asphalt to Intermediate	10	10	06-Nov-23	17-Nov-23	0
CNCD1110	Install Surface Asphalt	10	10	20-Nov-23	05-Dec-23	0
CNCD1120	Install Guardrail	5	5	06-Dec-23	12-Dec-23	0
CNCD1130	Pavement Markings	8	8	13-Dec-23	22-Dec-23	0
CNCD1140	Signs	10	10	26-Dec-23	09-Jan-24	43
CNCD1150	Remove MOT	5	5	10-Jan-24	16-Jan-24	43
RT 17 Mill and Overlay (Phase N4)		50	50	13-Jun-23	01-Aug-23	259
C1150	Mill/Overlay	20	20	13-Jun-23	11-Jul-23	121
C1160	Remove Temporary Signal and Temporary Pavement	10	10	12-Jul-23	25-Jul-23	178



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float
C1170	Open Loop D	5	5	26-Jul-23	01-Aug-23	178
Final Tie-Ins and Removal of Temporary GP to Ramp D (Phase N4)		31	31	18-Mar-24	17-Apr-24	0
CNCAL1160	Install Surface Asphalt	9	9	18-Mar-24	28-Mar-24	0
CNCAL1170	Install Guardrail	5	5	29-Mar-24	05-Apr-24	3
CNCAL1180	Pavement Markings	4	4	29-Mar-24	03-Apr-24	0
CNCAL1190	Signs	5	5	04-Apr-24	10-Apr-24	0
CNCAL1200	Remove MOT	5	5	11-Apr-24	17-Apr-24	0



A DESIGN-BUILD TEAM